

# Digi Money

Digital money is just like normal money.  
You just can't get it out of the bank.

1. A small number of companies, namely Time Warner, Comcast, and AT&T, control the service provider layer
2. The World Wide Web itself is dominated by a few walled gardens: Facebook, Google, Amazon, Netflix, Twitter and a few others.

There are plenty of people talking about ending money as we know it.  
Government's, Banks, Cross border traders.

The Lightning Network is a protocol that will let transactions happen off the blockchain so they can happen much faster. The blockchain then acts as an arbiter that will remove [counterparty risk](#). Driverless cars avoiding traffic - automatically paying to pass.

The blockchain or digital money should start to change that.

But -- **Money leads to Power which leads to Centralisation**

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## Benefits

Easily transferred  
No transaction costs  
Could be global

## Weaknesses

Not really trusted yet, let alone understood  
Software difficult to use, not really mobile friendly  
Tend to be peer to peer - without a formal network  
Legislation is behind

How old is digital currency?

History back to 1983 when digital money was first considered.

In 1983, a research paper by [David Chaum](#) introduced the idea of digital cash.<sup>[4]</sup> In 1990, he founded [DigiCash](#), an electronic cash company, in Amsterdam to commercialize the ideas in his research.<sup>[5]</sup> It filed for bankruptcy in 1998.<sup>[6][7]</sup>

In 1997, Coca-Cola offered buying from vending machines using mobile payments.<sup>[8]</sup> After that [PayPal](#) emerged in 1998.<sup>[9]</sup>

Other system such as [e-gold](#) followed suit, but faced issues because it was used by criminals and was raided by US Feds in 2005.<sup>[5]</sup>

In 2008, [bitcoin](#) was introduced, which marked the start of Digital currencies.<sup>[5]</sup>

### Mobile digital wallets

A number of electronic money systems use [contactless payment](#) transfer in order to facilitate easy payment and give the payee more confidence in not letting go of their electronic wallet during the transaction.

- In 1994 [Mondex](#) and [National Westminster Bank](#) provided an 'electronic purse' to residents of [Swindon](#)
- In about 2005 [Telefónica](#) and [BBVA Bank](#) launched a payment system in [Spain](#) called Mobipay<sup>[13]</sup> which used simple [short message service](#) facilities of [feature phones](#) intended for pay-as you go services including taxis and pre-pay phone recharges via a BBVA current bank account debit.
- In Jan 2010, Venmo launched as a mobile payment system through SMS, which transformed into a social app where friends can pay each other for minor expenses like a cup of coffee, rent and paying your share of the restaurant bill when you forget your wallet.<sup>[14]</sup> It is popular with college students, but has some security issues.<sup>[15]</sup> It can be linked to your bank account, credit/debit card or have a loaded value to limit the amount of loss in case of a security breach. Credit cards and non-major debit cards incur a 3% processing fee.<sup>[16]</sup>
- On September 19, 2011, [Google Wallet](#) was released in the US only, which makes it easy to carry all your credit/debit cards on your phone.<sup>[17]</sup>
- In 2012 [O2 \(Ireland\)](#) (owned by Telefónica) launched Easytrip<sup>[18]</sup> to pay [road tolls](#) which were charged to the mobile phone account or prepay credit.
- [O2 \(United Kingdom\)](#) invented O2 Wallet<sup>[19]</sup> at about the same time. The wallet can be charged with regular bank accounts or cards and discharged by participating retailers using a technique known as 'money messages' The service closed in 2014
- On September 9, 2014 [Apple Pay](#) was announced at the [iPhone 6](#) event. In October 2014 it was released as an update to work on [iPhone 6](#) and [Apple Watch](#). It is very similar to [Google Wallet](#), but for Apple devices only.<sup>[20]</sup>

From Wikipedia

Digital currency or digital money or electronic money is distinct from physical (such as banknotes and coins). It exhibits properties similar to physical currencies, but allows for instantaneous transactions and borderless transfer-of-ownership. Examples include virtual currencies and cryptocurrencies.

You'll need a  
Wallet - software  
Blockchain - the data  
Private key - for identification

All digital currencies rely heavily on..

Encryption

1. the process of converting information or data into a code, especially to prevent unauthorized access.
2. "I use encryption to protect sensitive information transmitted online"

Encryption explained - Do you know what SSL is?

https:// is an encrypted connection.

What is SSL?

SSL stands for Secure Sockets Layer, an encryption technology that was originally created by Netscape in the 1990s. SSL creates an encrypted connection between your web server and your visitors' web browser allowing for private information to be transmitted without the problems of eavesdropping, data tampering, and message forgery.

To enable SSL on a website, you will need to get an SSL Certificate that identifies you and install it on your web server. When a web browser is using an SSL certificate it usually displays a padlock icon but it may also display a green address bar.

Hashing - used for further obfuscation (hiding of data)

A hash function is any [function](#) that can be used to map [data](#) of arbitrary size to data of fixed size. The values returned by a hash function are called hash values, hash codes, digests, or simply hashes. One use is a data structure called a [hash table](#), widely used in computer software for rapid data lookup. Hash functions accelerate table or database lookup by detecting duplicated records in a large file. An example is finding similar stretches in DNA sequences. They are also useful in [cryptography](#). A [cryptographic hash function](#) allows one to easily verify that some input data maps to a given hash value, but if the input data is unknown, it is deliberately difficult to reconstruct it (or equivalent alternatives) by knowing the stored hash value.

blockchain

'blɒktʃeɪn/

noun

noun: blockchain; plural noun: blockchains; noun: block-chain; plural noun: block-chains  
a digital ledger in which transactions made in bitcoin or another cryptocurrency are recorded chronologically and publicly.

## Is blockchain technology the new internet?

The blockchain is an undeniably ingenious invention – the brainchild of a person or group of people known by the pseudonym, [Satoshi Nakamoto](#). But since then, it has evolved into something greater, and the main question every single person is asking is: What is Blockchain?

By allowing digital information to be distributed but not copied, blockchain technology created the backbone of a new type of internet. Originally devised for the [digital currency, Bitcoin](#), the tech community is now finding other potential uses for the technology.

Bitcoin has been called “digital gold,” and for a good reason. To date, the total value of the currency is close to \$9 billion US. And blockchains can make other types of digital value. Like the internet (or your car), you don't need to know how the blockchain works to use it. However, having a basic knowledge of this new technology shows why it's considered revolutionary. So, we hope you enjoy this, what is Blockchain guide.

## Virtual currency

Main article: [Virtual currency](#)

A virtual currency has been defined in 2012 by the [European Central Bank](#) as "a type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific [virtual community](#)".

The [US Department of Treasury](#) in 2013 defined it more tersely as "a medium of exchange that operates like a currency in some environments, but does not have all the attributes of real currency".



The key attribute a virtual currency does not have according to these definitions, is the status as legal tender.

Unlike traditional currencies, which are issued by central banks, Bitcoin has no central monetary authority. Instead it is underpinned by a peer-to-peer computer network made up of its users' machines, akin to the networks that underpin BitTorrent, a file-sharing system, and Skype, an audio, video and chat service. Bitcoins are mathematically generated as the computers in this network execute [difficult number-crunching tasks](#), a procedure known as Bitcoin “mining”. [The mathematics of the Bitcoin system](#) were set up so that it becomes progressively more difficult to “mine” Bitcoins over time, and the total number that can ever be mined is limited to around 21 million. There is therefore no way for a central bank to issue a flood of new Bitcoins and devalue those already in circulation.

Cryptocurrencies allow electronic money systems to be decentralized; systems include:

- [Bitcoin](#), a peer-to-peer electronic monetary system based on cryptography.
- [Litecoin](#), originally based on the bitcoin protocol, intended to improve upon its alleged inefficiencies.
- [Ripple monetary system](#), a monetary system based on trust networks.
- [Dogecoin](#), a Litecoin-derived system meant by its author to reach broader demographics.
- [Nxt](#), conceived as flexible platform to build applications and financial services around.
- [Monero](#), an open source cryptocurrency created in April 2014 that focuses on privacy, decentralisation and scalability.
- [Ethereum](#)<sup>[25]</sup>, an open-source, public, blockchain-based distributed computing platform featuring smart contract (scripting) functionality.
- [Zcash](#), a cryptocurrency that offers privacy and selective transparency of transactions.

### Top stories

 <p>Bitcoin price \$ per Bitcoin</p>	 <p>NEO smart economy</p>	
<p><b>Bitcoin rises above \$4,000 in record run for digital currency</b></p> <p>Financial Times · 23 hours ...</p>	<p><b>NEO "Antshares" Becoming the Dominating Digital Currency in the World...</b></p> <p>Ethereum World News · 2 d...</p>	<p><b>Check Out The Beginner's Guide to Cryptocurrency Investing</b></p> <p>ScienceAlert · 6 hours ago</p>

A digital currency is a means of payment that only exists electronically. Like traditional money (such as banknotes), they can be used to buy physical goods and services.

### Private digital currencies

Private digital currencies combine new payments systems with new currencies that are not issued by a central bank. The most well-known privately issued digital currency is Bitcoin, but other examples include LiteCoin, Ethereum and Ripple. We have [assessed private digital currencies](#) and concluded

that while they are interesting, they do not currently pose a material risk to monetary or financial stability in the United Kingdom. We continue to monitor developments in this area.

## Distributed ledger technology and blockchain

Bitcoin and other private digital currencies are underpinned by [distributed ledger technology](#) (also known as blockchain), which is an electronic ledger that records and verifies transactions made using the currency. Distributed ledger technology may have many other uses across the financial system, and may be a useful platform to power a central bank digital currency (although existing technology may also be sufficient).

Our [fintech accelerator](#) has carried out a [distributed ledger technology proof of concept](#), which will help inform our research into central bank-issued digital currencies.

## Central bank-issued digital currencies.

At the moment, the Bank of England provides electronic accounts to banks and key financial institutions, but the public can only hold central bank money in physical form – as banknotes. If a central bank were to issue a digital currency everyone, including businesses, households and financial institutions other than banks, could store value and make payments in electronic central bank money in addition to being able to pay with cash.

While this may seem like a small change, it could have wide-ranging implications for monetary policy and financial stability.

We are undertaking a multi-year research programme into the implications of a central bank, like the Bank of England, issuing a digital currency. We first raised the possibility of a central bank-issued digital currency in [our research agenda](#) in February 2015. We have since released a more detailed [selection of research questions](#) on the topic. We welcome continued engagement from the wider central banking and academic community to shape our research in this emerging field.

## MIT

The Digital Currency Initiative is a group at MIT focusing on cryptocurrency and its underlying technologies. Cryptocurrencies like Bitcoin enable open, trustless digital payments and contracts. In the spirit of the Internet's wide reach, this technology, and the people behind it, have the potential to impact billions of people and become a crucial part of daily life. We seek to push the envelope on the development of this technology with fundamental research, while shedding light on the associated benefits, risks, and ethical quandaries. Beyond research centered at MIT, we also help support open-source cryptocurrency communities and diversity, and hope to foster a broader academic community in this space.

#### Notes/Links

<http://www.economist.com/bitcoinexplained>

<http://www.bankofengland.co.uk/research/Pages/onebank/cbdc.aspx>

<https://coincheck.com/>

<https://www.coincorner.com/>

<http://dci.mit.edu/>