



Blockchains and Bubbles

Unless you've been lucky enough to live in a deep underground bunker for the last decade or so, you have probably heard of **Bitcoin** and the exciting new world of cryptocurrencies. If you find them hard to understand, you're certainly not alone, for the whole thing is so complex and weird, few really do.

In fact, **cryptocurrency** and its derivatives are so mind-bogglingly complicated that even though millions of dollars are being made trading them, no one can say for sure whether this is truly revolutionary technology, the biggest financial hoax ever, or something else entirely. What is obvious, however, is that they are a really big deal right now, and so this issue of the Portal takes a look at what it's all about.

Mysterious origins

The mystery starts at the very beginning. Bitcoin began with a white paper in 2008 by an unknown person (or group) called "**Satoshi Nakamoto**" whose identity remains hotly disputed to this day. The goal was to create an entirely digital kind of online cash.

Money originally consisted of real items with agreed-upon value that could be traded, be they bits of gold, seashells, or big stone disks. To prevent fraud and other abuses, government and banks took over money's creation and control since early times.

But for a long while now, money has been based solely on **trust**. A dollar you take to the bank to trade is actually a promissory piece of paper. The bank will not give you gold in exchange, but another dollar.

Satoshi and others dreamed of online electronic payment systems that anyone could use free of government oversight and control. For digital currencies, that means they should be totally decentralized, using peer-to-peer connections for transactions so that they cannot be controlled by intermediaries. The system must work automatically, not relying on trust.

But the basic problem is that *anything* digital can be easily replicated or counterfeited, which would result in massive, uncontrollable inflation. The brilliant solution to all this was the **blockchain**, an online ledger distributed across many computers that

records and validates all transactions, while encrypting them to provide anonymity.

To maintain and continually extend the ledger requires "**miners**" with powerful computers that compete to approve transactions by performing necessary complex mathematical calculations in blocks linked together across the net, hence "**blockchains**". For their proof of work, new bitcoins are created. The value of this work slowly diminishes over time, and the total supply is capped at *21 million* bitcoins, which should provide a solid check to inflation.

It is, of course, much more intricate than described above. There are transaction fees involved, and how the bitcoin peer-to-peer network decides to reward miners and add blocks is complicated, too. But since all the blocks are linked and encrypted, it would take an enormous effort to hack the system.

The boom begins

The **bitcoin system** began working in 2010. Two years later, a bitcoin was worth \$12, by 2017 it had skyrocketed to \$10,000 and at the time of this writing is now worth \$58,468.60. Bitcoins and other cryptocurrencies are not kept in users' digital **wallets**, but their unique cryptographic keys are. So losing one's password can be, and has been, a **real disaster**.

But there have been significant downs as well as ups; early on, Bitcoin attracted a lot of bad publicity for its early adoption on the dark web to pay for drugs and other contraband. That has not stopped lots of people from mining bitcoins, nor the numerous other cryptocurrencies that have been springing up like weeds particularly in recent times.

ICOs (Initial Coin Offerings) now seem to happen ever week or so, with each system offering slightly different features and working theory from the others, so it will take a while to work out which have lasting value, don't work well, or are really just scams.

One of the most notable alternatives to Bitcoin is **Ethereum**, the most widely-used but second largest platform. The main difference from Bitcoin is that it has an initial supply of *72 million* coins and the network can execute scripts and run applications. This allowed Ethereum to become the basis of decentral-

ized finance and the new hotness and source of the current boom, **non-fungible tokens, NFTs**.

Into the ether

Here's where it all gets even weirder. Despite sounding like a treatment for fungus, "*non-fungible*" simply means it is unique; it can't be replaced by something else like that dollar mentioned earlier. And "*token*" means it refers to something else.

So an NFT is basically a unique **receipt** with a link to a thing, which may be digital. It doesn't sound revolutionary, but considering the ease of digital replication, it is. If you buy an NFT to a picture, a jpg, it may be identical to one you can download and copy for free, but the receipt makes it unique and one-of-a-kind, rare and thus somehow more valuable.

People are "**minting**" NFTs for all kinds of things; everything from the first tweet to collections of fart noises, all kinds of digital artwork, even clips from basketball games to be used like trading cards. John Cleese of Monty Python fame even minted one for a sketch he did of the **Brooklyn Bridge**, which indicates precisely what he thinks of the whole thing.

NFTs are important for finally giving digital visual artists a way to get paid for their work. Numerous markets, with differing rules just like cryptocurrency, have been set up online to sell them. But at the moment, the whole thing is awash in a roaring sea of hype and enthusiasm, shown by *\$69 million* being **paid for a set of jpgs** by the artist known as "Beeple".

Many people compare this to historical financial bubbles, like the famous **Tulip Mania** of the 1700s. One particular kind developed colored stripes on its petals; its bulbs were sold at ever higher prices. The bubble popped when it was realized that the coloration wasn't genetic and could not be bred.

What will happen when people realize that a jpg is just a jpg? The bubble may already be leaking. NFTs have **already lost** 70% of their value since February, and that just may be the start of the collapse.

But there are other significant drawbacks to the entire concept. Blockchains involve an immense amount of useless calculations that require energy. This means that miners need lots of **cheap power**, often generated in areas with few pollution controls, or they need to steal computing power from others.

Either way, blockchains and cryptocurrencies gobble up huge amounts of electricity to just keep going. A single bitcoin takes **more energy** to produce than most US households use in 24 days. New methods of sharply decreasing that amount must be invented if blockchains are to survive at all, much less form the basis of the future world economy.

But, as the Chinese have just announced they are launching a **true digital currency**, the real revolution may just be starting. There may be a few more bubbles and crashes ahead before it's all worked out.

New Covid Tracing App for NM

By Mark Costlow, SWCP President

As of late March, the NM Department of Health is providing a COVID-19 exposure notification app for Apple and Android smartphones. **NM Notify** was developed in a unique, unprecedented partnership between Apple and Google to ensure compatibility. Developers estimate that one COVID-19 infection is stopped for every two people that install the app.

The big concern about exposure apps is **privacy**. How can they accomplish the goals without collecting or exposing your personal information? One way is that it doesn't use GPS. (Some exposure apps do use GPS, but not NM Notify). And **NMDOH promises** that they do not collect or expose any personally identifiable data. So how do they do that?

It works by having your phone generate a random anonymous device number, which changes every few minutes. When you are near another person who has enabled the app, your devices trade their anonymous numbers via Bluetooth. If you later test positive for COVID-19, NMDOH will send you a PIN to use to report your status to NM Notify. If you choose to do this (you are NOT obligated) NM Notify then alerts all the other app users who were in close proximity to you for long enough to be in danger.

The notification does NOT tell you where the exposure happened, or any info about who the exposure was from. All you know is you were close to someone with COVID for long enough that you should get tested and quarantine right away.

I personally am satisfied that this app is not collecting or exposing any personal data, and think it is a good idea to use it. Combined with vaccines, masking, and social distancing, this can help re-open our society and get to the new normal.

C'mon people, **load the app**. I want to go see a movie in 2021!



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