



The Evolution of the Web

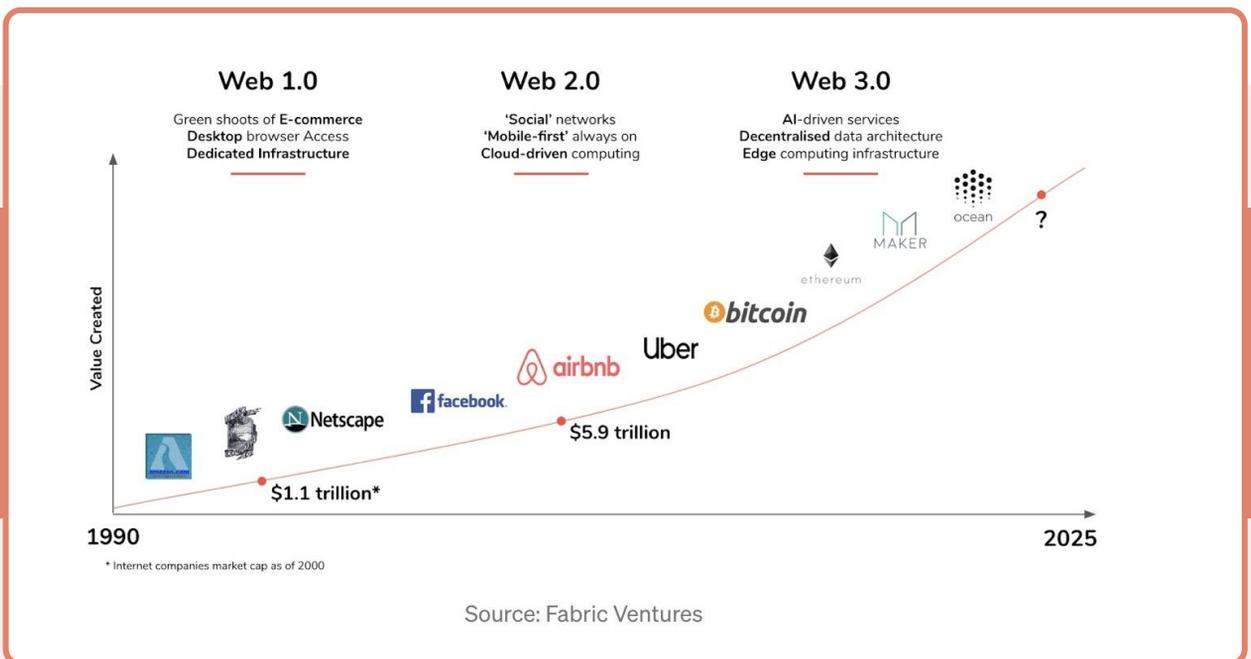
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In this month's research piece we have widened the lens and taken a step back to analyse the revolution that underpins digital assets, Web 3.0. In our detailed notes to date, we have focussed on blockchain technology, the Ethereum network, as well as decentralised applications in particular DeFi. This month we are zooming out to look at the evolution of the internet. It is imperative for investors to understand why Web 3.0 will continue to further expand the digital revolution as our lives move further and further into the metaverse. Our expertise as asset managers is in the finance arena, hence we play to our skills, focussing on the financial revolution that underpins the adoption of Web 3.0, but understanding the bigger narrative is equally as important.

In order to move forward it's important to understand where we have come from. It's often not clear that we are in the act of transiting from one phase to the next. The enormity of the change is often only revealed over the arc of time and upon reflection. The world today feels that we are indeed entering a period of rapid transition. The progress of the internet as it moved into the public consciousness is described in three distinct phases: Web 1.0, the internet of information where a global library was created online. Web 2.0 the internet of global publishing, where individuals were able to create information using social networks and companies monetised that data. We are currently entering which is best described as an open, trust less and permissionless network, Web 3.0. This will give users the potential to monetise their own data, with blockchains and cryptocurrencies providing the foundation to the new system.



Web 1.0.

This refers to the period from 1991 to 2004 where services were built on open protocols that were controlled by the internet community. The early Internet was mostly composed of web pages joined by hyperlinks, without the additional visuals, controls and forms that we see when we log on today. It is often referred to as the “read-only” web – a web that was not interactive in any significant sense. This was by and large a static system whereby most users were simply acting as a consumer of content. There was no mechanism to communicate back to the information of the content producer.

The commercialisation of Web 1.0 was limited. Consumers were charged for accessing online information and communicating with each other. Having an email was once a monthly fixed cost! A Web 1.0 e-commerce store would simply be a catalog through which the user can view products and services. The companies that were successful during this time built out the infrastructure that enabled data to be digitalised, hosting platforms that enabled private websites and email providers.

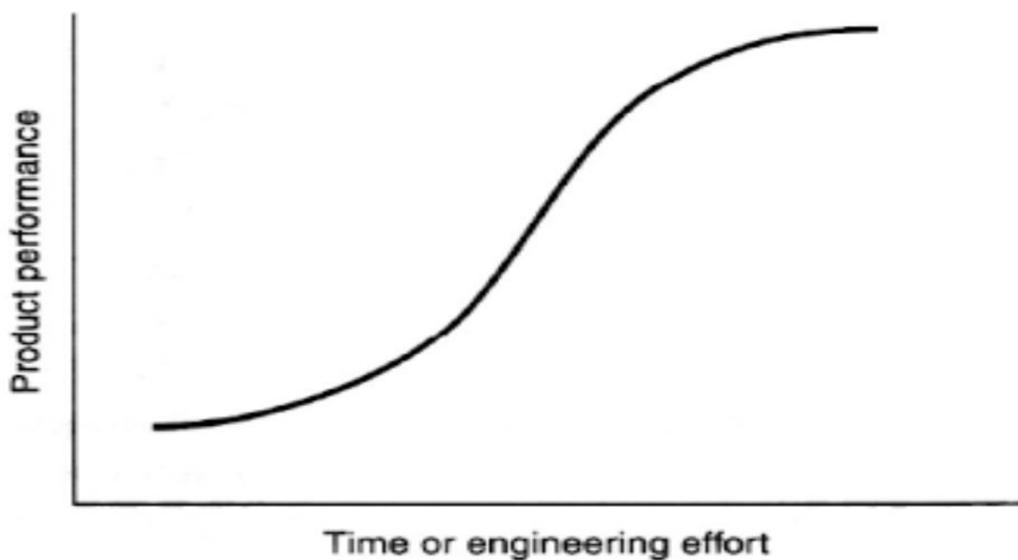
Web 2.0

Described roughly as the period from 2005 to 2020, this era saw the rise of the for-profit tech companies – most notably Google, Apple, Facebook, and Amazon (GAFA). These companies built software and services that rapidly outpaced the capabilities of open protocols. The explosive growth of smartphones accelerated this trend as mobile apps became the majority of internet use. Eventually users migrated from open services to these more sophisticated, centralised services. Even when users still accessed open protocols like the web, they would typically do so mediated by GAFA software and services. Web 2.0 coincided with the rise of big data leading to predictive and user analytics. The good news is that billions of people have access to amazing technology, many of which are free to use. The bad news is that it became much harder for startups, creators, and other groups to grow their internet presence without worrying about centralised platforms changing the rules on them, taking away their audiences and profits. This in turn has stifled innovation, making the internet less interesting and dynamic. Centralisation has also created broader societal tensions, which we see in the debates over subjects like fake news, state sponsored bots, “de-platforming” of users, privacy laws, and algorithmic biases. These debates will only intensify in the coming years.

Whilst often framed very simplistically using the innovation “S Curve” model, the adoption process for most new technology is anything but smooth. The hurdle to get people comfortable storing client data with a 3rd party cloud server wasn't a straight line, getting smartphones cheap enough to be a necessity was a long process. But what we can draw from this is that technology is like a river, it eventually gets its way. Technology in terms of the internet has impacted the world in many ways throwing up a host of new challenges for society to deal with. We believe that the next iteration of the internet is going to be even more disruptive than the last.



The Innovation “S – Curve”



Web 3.0

Web 3.0 - Welcome to the future - The most important evolution enabled by Web3.0 is the minimisation of the trust required for coordination on a global scale. This marks a move towards trusting all constituents of a network implicitly rather than needing to trust each individual explicitly and or seeking to achieve trust from a third party. Web 3.0 has the potential to fundamentally expand the scale and scope of human and computer interactions far beyond what we can imagine today. These interactions, ranging from seamless payments to richer information flows, to trusted data transfers, will become possible with a vastly increased range of potential counterparties. The shift will enable a new wave of previously unimaginable businesses and business models; from global co-operatives to decentralised autonomous organisations and self-sovereign market places.

Web 3.0 is a potential rebalancing of the structure of society, in its purest form access will be available to everyone, and ideally with access regardless of location, gender and with indifference to whether you are a person or machines - on this level playing field people and businesses will be able to trade value, information & work with global counterparties they don't know or yet explicitly trust, without an intermediary, this will dramatically cut the cost of interactions.

How does the new system impact finance?

With a deeper understanding of where we have come from, it becomes clearer to see where we are going. Blockchain technology is building a framework where we believe there are five key components that will fundamentally change the way that finance and business are conducted using Web 3.0 technology. They are as follows :

Bearer Assets

One of the key technological breakthroughs of cryptocurrencies is they are digital bearer assets. Digital assets rely on private keys to sign, seal, and prove ownership. This matters as it limits counterfeiting and allows for a clear record of ownership. This is an important distinction from today's internet money that is recorded in a banks centralised database and is an unsecured liability of the financial institution in which the money is deposited. With the eradication of cash and cheques from day to day payments, today's digital money is not your property. It is important to understand the nuance and legal ramifications between the two.

Decentralisation

Distributed ledger technology creates networks that are not owned or controlled by a single person or entity. This type of network involves multiple independent nodes or computers that are connected and provide a pool of resources. Decentralised systems offer greater reliability as there is no single point of failure or vulnerability. Scaling of these networks is yet to be proven.

Disintermediation

One key feature of digital bearer assets and decentralised computer networks is the elimination of financial intermediaries. There are many jobs in today's society that perform the function of trust in relation to a financial transaction. The invention and evolution of digital assets means that computers can now perform that function. It will take time for the current financial system to disintermediate further. We have seen bank branches close and be replaced by online banking. The growth of mortgage brokers and neo banks further represents this paradigm shift. The complete digitalisation of money will take time but the wheels are in motion.

Open Source Code

Web 3.0 is being built on open source code. Open source code is designed to be publicly accessible. Anyone can see, modify, and distribute the code as they see fit. Open source is developed in a decentralized and collaborative way, relying on peer review and community production. Open source software is often cheaper, more flexible, and has more longevity than its proprietary peers because it is developed by communities rather than a single author or company. This is a fundamental change in the way business is done, allowing for greater cost savings and a system that is interoperable.

Unique Identifiers

Blockchain technology will facilitate each and every asset having a digital twin, allowing financial transactions to be conducted with reduced friction and less cost. The emergence of this technology has widely become known as an NFT (Non-Fungible Token). Today's NFT's are used to represent easily-reproducible items such as photos, videos, audio, and other types of digital files as unique items (analogous to a certificate of authenticity), to establish a verified and public proof of ownership. Copies of the original file are not restricted to the owner of the NFT, and can be copied and shared like any file. Over time each and every asset produced will have a unique digital identifier or a digital twin.

Nobody truly knows the applications that will be built guided by the above Web 3.0 narrative but the experiments that are currently being played out in DeFi, gaming and NFT space using the tokenomic model of digital assets is giving us an idea of the trajectory we are headed. The Ethereum based ecosystem works, its currently too expensive in terms of transaction costs to be globally scalable and while the interactions are verified by only 3-4,000 nodes (computers) it demonstrates that the network structure works. Currently its processing speeds remain constrained in terms of transactions per second but as we learnt from the late 1990's things moved quickly from downloading website pages line by line and pixel by pixel to where we are today. The benefits will be distributed far more evenly than they are now, the unbanked will become banked, the excluded will be included and the early adopters who can position themselves for change will be placed to take advantage of the shift. The transition to Web 3.0 will take a similar path to previous iterations of the internet, gradually then very suddenly.