

Web3 Primer

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What is Web3?

Web3 is a term coined to describe a group of technologies which support the development of a decentralized web, including Blockchain, Smart Contracts and Decentralized Autonomous Organizations (DAO). It is a complex, evolving space spanning various disciplines and technologies, promising to bring about seismic changes to the web. This emerging ecosystem is known as the 'read, write, own' internet, which supersedes our current Web 2.0 and the more static first-generation internet.

WEB 1.0	WEB 2.0	WEB 3.0
<p>Read</p> <ul style="list-style-type: none"> • Static • Consumers able to read webpages • Data stored in academic and governmental servers • "Information economy" 	<p>Read/Write</p> <ul style="list-style-type: none"> • Dynamic • Consumers able to create and post on webpages • Data stored in private company servers • "Platform economy" 	<p>Read/Write/Own</p> <ul style="list-style-type: none"> • Experiential • Consumers communally run and own webpages • Data stored on a public blockchain • "Token economy"

Evolution of the Internet

Rather than relying on large technology companies to provide "free" communication and exchange platforms at the expense of profiting from user data – as is common under current business models – the objective with a decentralized web is to shift power back to users through cryptography, open standards and open protocols. To achieve this, Web3 leverages blockchain's open-data structure and associated infrastructures and applications, such as smart contracts, digital assets and decentralized autonomous organizations (DAOs) to create a "decentralized, peer-to-peer, self-sovereign" web.

Core Concepts

Building Blocks of Web3

<p>BLOCKCHAIN</p> <p>A distributed datastore that records transactions on multiple servers, rather than on a central server. Each transaction is recorded and verified by multiple parties in the network.</p>	<p>SMART CONTRACTS</p> <p>Code or programmes stored on a blockchain that self-execute when predetermined conditions are met. They hold the terms of agreement between parties.</p>	<p>NON-FUNGIBLE TOKENS (NFTs)</p> <p>An asset recorded on a blockchain. It represents proof-of-ownership or the unique identification of digital or physical assets that are tokenized.</p>	<p>DIGITAL ASSETS</p> <p>Assets that represent verifiable and ownable intangible digital items or anything of value. Digital currencies are examples of digital assets.</p>
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Web3 Applications and Infrastructure

<p>DECENTRALIZED APPLICATIONS (dApps)</p> <p>Applications or programmes that exist and run on a blockchain or on open networks that enable financial, social and other activities.</p>	<p>DECENTRALIZED AUTONOMOUS ORGANIZATIONS (DAOs)</p> <p>A form of collective and distributed governance where shareholders leverage tokens and a shared treasury to make decisions by rules recorded on a blockchain.</p>
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Value Proposition

Proponents of the decentralized web maintain that this stack of technologies will reconfigure how individuals participate in digital—and even, in physical—spheres, bringing about systemic change and enabling new business and social models. From shattering monopolies and a meaningful course correction to a giant speculative economy that is self-referential in the extreme, discussions regarding Web3's value proposition are full of debate and uncertainties. Below, we explore contrasting views on this ecosystem's promise, highlighting three interwoven features at the core of its value proposition: decentralization, ownership and control and disintermediation.

WHAT ADVOCATES SAY	WHAT SKEPTICS SAY	WHY THE UN SHOULD CARE
DECENTRALIZATION		
<p>Central to Web3's technical and sociopolitical ethos is decentralization, understood as the transfer of authority, control and responsibility to more nodes in the system.</p> <p>Decentralization reduces the possibility of single points of failure and enables a more equitable distribution of power and control, potentially reducing the influence of centralized authorities and intermediaries and increasing opportunities for participation.</p>	<p>A decentralized web is not immune to concentrations of power and could replicate the same balance of power that is common to Web2. It could unleash competition over who gets to set up the rails of the digital economy, with significant implications for financial systems.</p> <p>Decentralized systems may be more vulnerable to malicious actors and could make the web more complicated and out of reach for basic users, given significant barriers to entry with its infrastructure.</p>	<p>A decentralized web could introduce novel ways to move money and assets following the rules set by a new class of technocrats. It will be critical to ensure that international law and human rights standards are upheld across these systems.</p> <p>Web3 could introduce tamper-proof and transparent systems that lead to greater accuracy and accountability across financial and governance systems. For the UN, this could imply adopting Web3 infrastructure to further its agenda and work.</p> <p>Web3 could bring about a less "zero-sum" game, where more actors across the network benefit economically, potentially boosting development objectives.</p>
OWNERSHIP AND CONTROL		
<p>In Web3, ownership and power will be shifted away from Big Tech to individuals. Users will own and control their content, data and digital assets. Assets would be portable across platforms, enhancing choice and introducing new sources of competition.</p> <p>Because digital assets would be managed on public ledgers, transactions would be visible and auditable, making it clear which assets exist and who owns what.</p>	<p>While Web3 infrastructure supports auditability of ownership, legal frameworks on the ownership of digital assets are unclear and inconsistent across jurisdictions.</p> <p>Web3's public nature raises privacy concerns which could prevent mainstream adoption. Granting users total control over their data may also create consumer protection vulnerabilities, especially for those less digitally-literate.</p>	<p>Web3 introduces ample use cases within the remit of the UN, including applications that rely on the secure and transparent tracking of ownership, assets and resources. Even more, Web3 could radically alter industries for which copyright and intellectual property are pivotal. This heightens the need for the Organization to be informed of the repercussions for property rights arising from this technology.</p> <p>The open-source and interoperable nature of the technology could mean that more individuals can contribute to redefining the web. It could be an opportunity for the UN to incentivize the creation of platforms that align with its principles and objectives.</p>
DISINTERMEDIATION		
<p>Web3 systems will enable peer-to-peer transactions without the need of centralized platforms, reducing the need to trust or rely on the approval of third parties, such as banks. This would effectively eliminate traditional actors across some services.</p> <p>Potentially, this could lead to new actors performing services, as well as increased access for users at the margin of traditional infrastructures.</p>	<p>Removing institutions from the key service provision – like regulatory compliance, risk management and customer protection – could introduce a suite of vulnerabilities to end users.</p> <p>Disintermediation may lead to reduced security and oversight, thus negatively impacting customers and potentially introducing instability to the global economy and monetary sovereignty.</p>	<p>With a shift in power away from traditional institution, regulators, and even governments, it becomes urgent to ensure the protection of the rule of law and equal protection of the law across the internet. Web3 generates uncertainties over some of the adjudicating roles of the UN, including those of its international institutions and bodies.</p> <p>At the same time, disintermediation introduces the possibility to enhance access to new services and to create new ones, including through financial inclusion. Upholding fairness, access and inclusion to promote a more equitable and sustainable economy system.</p>

Maturity Assessment

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|---|---|
| <input type="checkbox"/> Hypothetical – the technology is conceptually possible | <input checked="" type="checkbox"/> Working Prototypes – working examples are being built |
| <input type="checkbox"/> Experimental – research and experiments are proving the technology | <input checked="" type="checkbox"/> Diffusion – the technology is being adopted |
| | <input type="checkbox"/> Commercialization – the technology is part of mainstream solutions |

The Web3 ecosystem is rapidly growing. Although still at an early stage, significant disruption is occurring across some industries - with others yet to buy into its value proposition.

Interested in learning more about Web3?

In our upcoming thought piece, the Emerging Technology Lab (ETL) will further break down this technology's use cases and purported transformative potential for the UN. Check our site for information about this publication.

About UN OICT Emerging Technologies Lab (ETL)

The Emerging Technologies Lab expedites the adoption of frontier technologies across the UN Secretariat. It leverages emerging technologies to generate greater efficiencies and to enhance the organization's ability to respond to an ever-evolving technological landscape, whilst providing appropriate safeguards through the careful identification and evaluation of adoption-related risks.

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