



Research Report | 27.09.2023

Smart Contract Platforms: The foundation of Web 3.0

In a rapidly evolving financial landscape where digitization is commonplace, blockchain technology emerges as a groundbreaking concept. Smart contract platforms are a significant driver of this transformation. Introduced through Ethereum in 2015, platforms capable of executing smart contracts have established themselves as cornerstones of Web 3.0.

In 2009, a groundbreaking digital, programmable form of currency was introduced with Bitcoin. This decentralized currency enabled users to conduct peer-to-peer transactions without relying on intermediaries or middlemen like banks. However, limitations in terms of programmable transactions soon became apparent. Ethereum entered the scene, introducing a new paradigm with smart contracts: programmable, self-executing contracts.

What are smart contracts?

Smart contracts are digital agreements that self-execute once predefined conditions are met. They combine legal contract clauses with self-executing program code. Thanks to increased efficiency and transparency, this technology is revolutionizing the financial sector, particularly.

For instance, it enables the immediate disbursement of a loan against collateral in the form of digital assets. Even the criteria for liquidation are already automated within the system. If the collateral value falls below a certain threshold, it is automatically sold to cover the outstanding loan. Under the term "Decentralized Finance" (also known as DeFi), automated lending platforms, decentralized trading venues, and other decentralized financial applications have emerged on the Ethereum blockchain.

Why do smart contract platforms form the foundation of Web 3.0?

Web 2.0 was characterized by centralized platforms where a few major players held control. Web 3.0 flips

that paradigm. Here, data is decentralized, and users gain more control. Smart Contracts are the backbone of this new internet by enabling transparent transactions and interactions without central control.

In the dynamic world of Web 3.0, Smart Contracts offer numerous applications beyond the DeFi sector. These include tokenized assets that enable fractional ownership of physical and intangible goods; digital identity systems that ensure individual data control; supply chain management solutions for transparent product tracking; decentralized autonomous organizations (DAOs) for automated governance; and NFTs that guarantee the authenticity and uniqueness of digital assets.

These examples are by no means exhaustive and merely demonstrate the impressive diversity and potential of Smart Contracts in the evolving internet era.

The evolution beyond Ethereum

The dynamic growth and popularity of Smart Contracts in the form of decentralized applications (dApps) on the Ethereum platform soon led to capacity constraints. This not only resulted in increased transaction costs but also slower confirmation times. In response to these challenges, developers introduced new blockchain solutions (Layer 1). Layer 1 refers to standalone blockchains that are often developed as alternatives to existing platforms like Ethereum.



These new blockchains, such as Binance Smart Chain, Cardano, or Polkadot, often aim to address specific problems or deficiencies of the first generations of Smart Contract platforms.

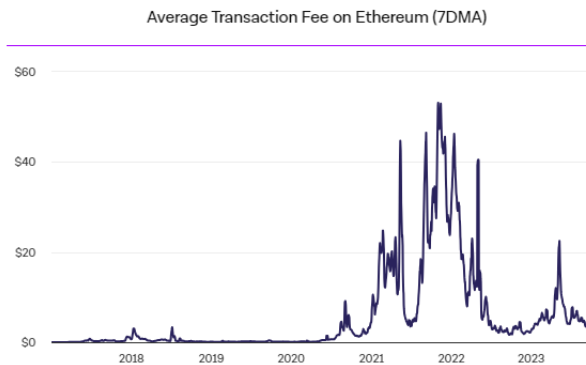


Figure 1: Average transaction fee on Ethereum / Source: The Block

Later, extensions for existing blockchains (Layer 2) also emerged. Layer 2 is a term that encompasses solutions built on existing platforms, typically Ethereum, which increase their capacity without altering the underlying blockchain.

Outlook

Overall, developments in both Layer 1 and Layer 2 are crucial for the future of the decentralized web. While new blockchains have the potential to completely reshape the game, Layer 2 solutions provide an evolutionary path that helps existing platforms keep pace with growing demand. Despite a general decline in DeFi activity, the latter have been able to sustain robust growth in deposited funds.

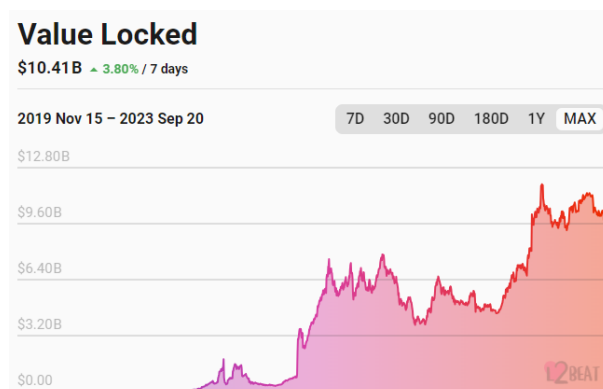


Figure 2: Total Value Locked (TVL) in Layer 2 Networks / Source: L2Beat

Looking ahead, the combination of Layer 1 and Layer 2 technologies will be pivotal in unlocking the full potential of Web 3.0.

However, despite the significant advantages of Web 3.0 and underlying Smart Contract platforms, users must be aware of the inherent technical, regulatory, and security-related risks associated with this new frontier of technology.