



The Rise of Decentralized finance

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ABSTRACT

Decentralized finance (DeFi) represents a paradigm shift in the financial sector by leveraging blockchain technology to eliminate traditional intermediaries such as banks and brokers. This transformation has been enhancing transparency and security in addition to extending financial services access globally. We can see an exponential growth in penetration of DeFi, from negligible amounts in 2018 to over \$40 billion by early 2021. This article talks about the inception, development, and potential of DeFi, highlighting its impact on conventional finance and future prospects.

Key words: Decentralized Finance (DeFi), Blockchain Technology, Smart Contracts, Ethereum, Total Value Locked (TVL)

INTRODUCTION

Decentralized finance (DeFi) is transforming the financial world by using blockchain technology, mainly through Ethereum. DeFi replaces traditional banks and brokers with smart contracts on blockchains that offer more open, transparent, and accessible financial services. Anyone with internet access can access this service, cutting out the inefficiencies of traditional institutions.

The global blockchain technology market is expected to grow from USD 123 billion in 2023 to USD 12,895 billion by 2033, with a compound annual growth rate (CAGR) of 68% from 2024 to 2033. This highlights the enormous potential of DeFi in the future.

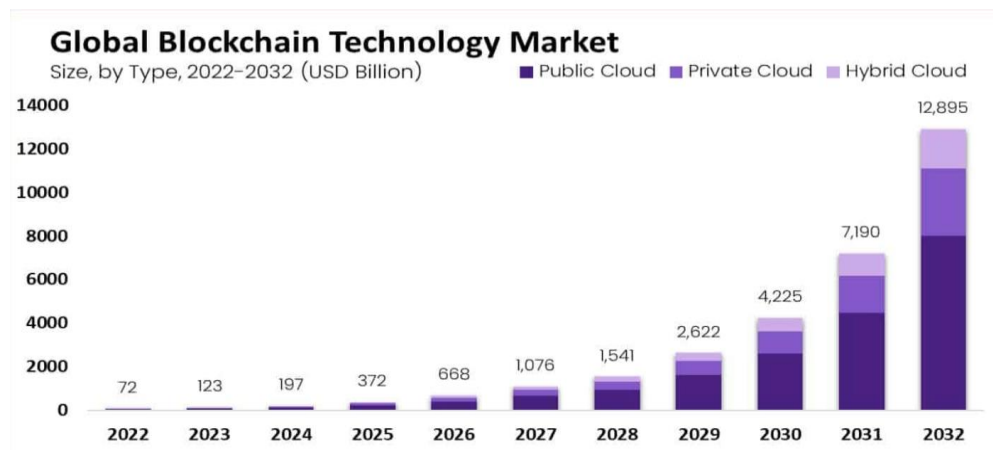


Figure 1: Size of the Global Blockchain Technology Market

Source (<https://market.us/report/blockchain-technology-market/>)

EVOLUTION OF DEFI

The origins of DeFi are rooted in the creation of Bitcoin in 2009, which introduced the concept of decentralized digital currency. However, the term 'DeFi' began gaining traction much later, around 2018, with the emergence of platforms like MakerDAO, which allowed users to lend and borrow cryptocurrency while maintaining control of

their assets through smart contracts. The subsequent years saw a proliferation of DeFi applications, including exchanges, lending platforms, and prediction markets.

Key to the rise of DeFi has been the advancement in blockchain technology, primarily through Ethereum. Unlike Bitcoin’s relatively limited scripting language, Ethereum’s more sophisticated platform has enabled developers to create complex and functional applications. This technological capability has led to innovative uses of blockchain technology, extending beyond simple transactions to sophisticated financial operations.

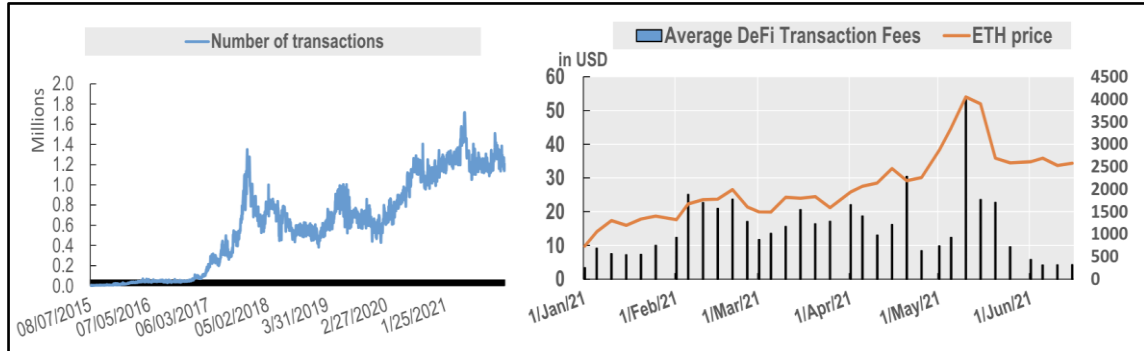


Figure 2: Ethereum daily transactions chart and transaction fees

[Source](#)

The chart above illustrates the daily transactions and transaction fees on the Ethereum network. As seen, the number of daily transactions has consistently been high, reflecting the network’s heavy usage. The transaction fees, while fluctuating, also highlight the demand and activity on the Ethereum platform.

THE CURRENT STATE OF DEFI

The rapid growth of the DeFi market captured significant attention from market participants and policy bodies during the summer of 2020, a period often referred to as "the DeFi summer." During this time, several DeFi applications began gaining substantial user traction, leading to a considerable expansion of the market. As of November 2021, the total value of crypto-assets locked (TVL) in Ethereum-based DeFi applications reached USD 100 billion, up from USD 1.9 billion on July 2, 2020—a remarkable 50-fold increase from a very low base.

Total Value Locked (TVL) is a crucial metric in the DeFi ecosystem. It represents the total value of assets (such as cryptocurrencies) that are staked or locked in a DeFi protocol’s smart contracts. TVL is used to measure the overall health, popularity, and trust in a DeFi project.

Additionally, alternative blockchains like Binance Smart Chain and Polygon have been increasing their presence in the DeFi space, accounting for 19% and 9% of TVL, respectively, as of June 16, 2021.

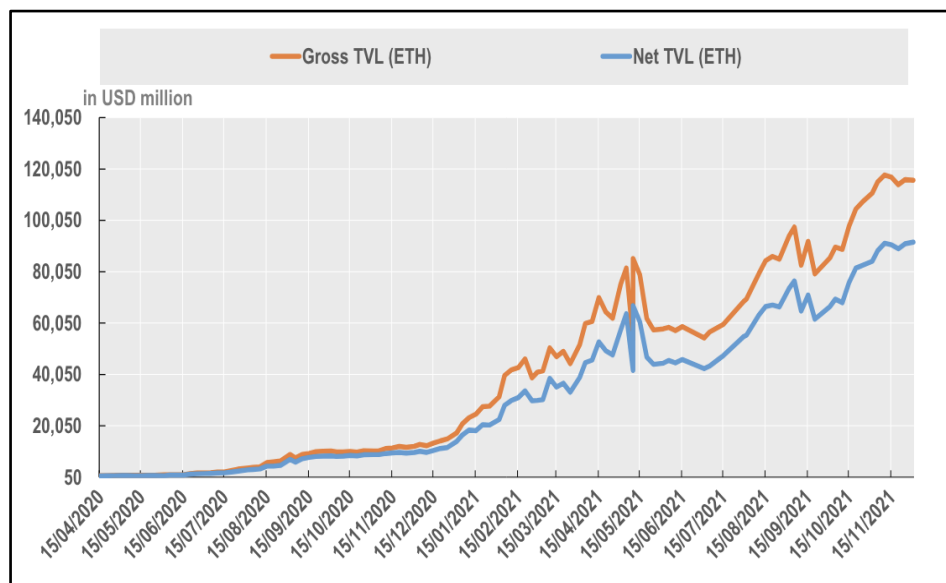


Figure 3: Gross and Net Total value locked (TVL) in DeFi (ETH)

[Source](#)

Note: TVL (Total Value Locked) in USD is calculated by taking the balances of crypto-assets and multiplying them by their USD price. This calculation applies only to protocols built on the Ethereum blockchain.

CHALLENGES AND CONTROVERSIES

Despite its rapid growth, DeFi is not without challenges. Issues such as high transaction fees, particularly on the Ethereum network, scalability concerns, and the complexity of use pose significant barriers to entry for average users. Additionally, the nascent nature of DeFi means that it is prone to risks like smart contract vulnerabilities, which have led to several high-profile hacks and scams.

Regulatory uncertainty also looms large over the DeFi space, as governments and financial authorities begin to scrutinize the sector more closely. How DeFi will navigate the complex regulatory environments across different jurisdictions remains a critical question for its future.

FUTURE OUTLOOK

The potential of DeFi extends beyond mere replication of traditional financial services. Innovations such as synthetic assets, decentralized autonomous organizations (DAOs), and inter-chain operability are set to redefine the breadth and depth of financial solutions available. Moreover, as blockchain technology evolves and tackles existing challenges like transaction speed and costs, DeFi stands to become more accessible and efficient, potentially integrating with traditional financial systems.

Furthermore, the ongoing development of second-layer solutions and alternative blockchains suggests a future where DeFi could operate seamlessly and at a fraction of the current costs, making it a truly mainstream financial solution.

BOTTOMLINE

DeFi has demonstrated remarkable growth and resilience, signalling a significant shift in the way financial services are viewed and utilized. With its promise of democratization, transparency, and efficiency, DeFi represents not just a challenge to traditional finance but a substantial enhancement and expansion of financial services globally. As it continues to evolve, DeFi offers an exciting glimpse into the future of finance, one that is decentralized, inclusive, and enormously innovative.

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