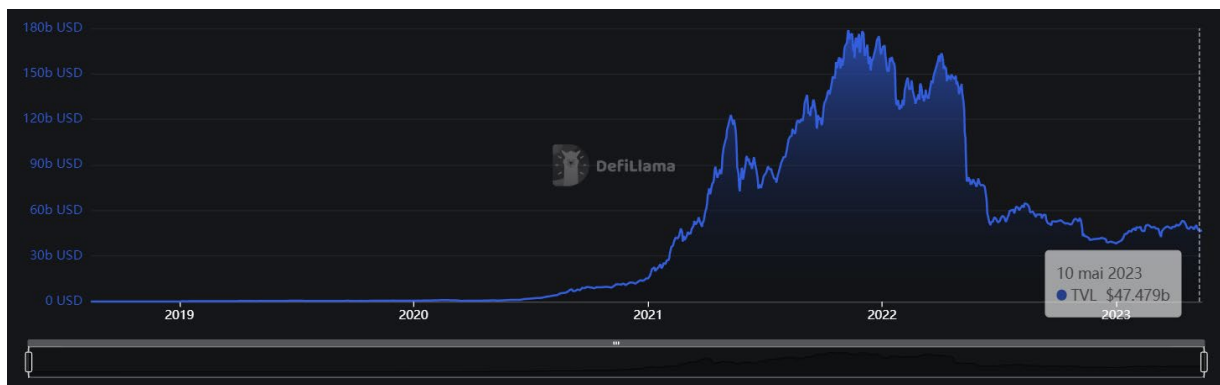


Is decentralized finance the future of finance?

In an interview with US TV channel CNBC in August 2021, Deutsche Bank CEO Paul Maley said that "It's necessary for any bank that wants to compete in the future, to make sure they have an ability to interact and interoperate with DeFi systems as they emerge." ¹.



Source : DefiLlama

As of May 10, 2023, decentralized finance represents \$47.479b of liquidity stored across various blockchains, mainly Ethereum. These liquidities are provided by DeFi players, who receive returns for their contributions.

¹ World Economic Forum, « Issue Briefing: What's next for decentralized finance (DeFi)? », 6 août 2021 (<https://www.weforum.org/agenda/2021/08/issue-briefing-what-s-next-for-decentralized-finance-defi/>)

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1. Introduction

Decentralized finance, or "DeFi", refers to decentralized financial infrastructures operating on an open², peer-to-peer, international blockchain.

The aim of DeFi is to make financial services traditionally provided by banks and financial institutions more accessible, without the need for trusted third parties³. Trust in third parties (banks, insurance companies) is replaced by trust in the reliability and security of a decentralized, unforgeable and immutable computer protocol.

While many platforms (wrongly) claim to belong to the "DeFi" ecosystem, not all of them have the same characteristics⁴. This article will focus on how decentralized finance works and what's at stake.

² <https://www.coinhouse.com/fr/academie/blockchain/definition-finance-decentralisee/>

³ ADAN, « L'avènement de la finance décentralisée (DeFi) : quels cas d'usage ? », 29 octobre 2021

⁴ Exemples : Binance DEX et IDEX

2. DeFi History: DAOs and decentralized applications (Dapps)

"The DAO" was the first autonomous, decentralized platform created on the Ethereum blockchain⁵. The acronym DAO stands for *Decentralized Autonomous Organization*. A DAO refers to a community of participants (developers and users of a blockchain), following the same governance rules written in a smart contract. The DAO's rules have been discussed and chosen by the community itself. To participate in the governance of a DAO, it is necessary to hold the DAO's governance tokens.

The notion of DAO is similar to the notion of company, as defined in article 1670 of the Monegasque Civil Code: "A company is a contract by which two or more persons agree to put something in common, with the aim to share the profit that may result." In this respect, the reclassification of DAOs as "de facto corporation" is a legal debate that hasn't been settled yet.

DAOs aim to replace hierarchical human organizations with "collaborative and horizontal human organizations"⁶.

Decentralized finance is inspired by this movement, whose philosophy is itself inspired by the values expressed in the Bitcoin white paper. DeFi differs from the traditional financial system in that it operates without a controlling body, can be audited in real time (open source) and is accessible to all.

DeFi developed mainly with the advent of decentralized applications (known as Dapps). Dapps are open-source computer protocols running on a blockchain able to host smart-contracts, such as the Ethereum blockchain. Dapps take the form of smart contracts stored and executed on a blockchain.

They are designed around incentive-based crypto-economic models, providing proof of the value exchanged on the network and making transaction history accessible to all.

The alignment of the economic interests of all DApp users around a cryptocurrency enables its autonomous and decentralized operation.

⁵ <https://2140.fr/wp-content/uploads/2022/06/A-DeFi-Timeline-Maker.pdf>

⁶ Cryptoast, "Qu'est-ce qu'une DAO ou organisation autonome décentralisée ?" » <https://cryptoast.fr/dao-organisation-decentralisee/>

3. The benefits of decentralized finance

Decentralized applications make it possible to implement services traditionally monopolized by the traditional banking and financial sector, such as:

- **Crypto-asset exchange:** decentralized exchanges (DEX) connect buyers and sellers of crypto-assets without a trusted third party. They are the decentralized version of marketplaces, competing with the bigger players: centralized exchanges such as Coinbase, Binance, Kraken etc.

Here are the top 10 DEXs by trading volume as at 05/15/2023:

Name	Chains	Weekly change	Volume (24h)	Volume (7d)	TVL
1 Uniswap		-14.12%	\$513.49m	\$9.3b	2.88b
2 PancakeSwap		+29.62%	\$518.19m	\$4.51b	2.11b
3 Level Finance		+793%	\$21.51m	\$2.58b	29.32m
4 Curve Finance		+7.04%	\$58.09m	\$877.99m	4.21b
5 DODO		+34.63%	\$25.52m	\$407.84m	41.24m
6 MetaDex		-7.49%	\$55.48m	\$319.24m	275 606
7 Trader Joe		+49.34%	\$20.86m	\$268.35m	97.83m
8 Balancer		+54.63%	\$15.77m	\$244.96m	1.11b
9 Quickswap		-5.77%	\$17.55m	\$204.49m	139.52m
10 Sushi		+19.87%	\$8 294 049	\$187.6m	403.04m

Source : <https://defillama.com/dexs>

- **Decentralized lending (lending and borrowing):** decentralized lending protocols link borrowers and lenders of crypto-assets: interest rates are reduced for borrowers due to the absence of a trusted third party;
- **Decentralized payments:** Enable users to avoid interbank fees and international fees (where applicable). Decentralized payments are quasi-instantaneous, as opposed to several days for a traditional bank transfer
- **Decentralized financial derivatives:** The best-known protocols for this purpose are Synthetix and dYdX.
- Decentralized fiduciary services⁷.

⁷ Dumas, Jean-Guillaume, et al. « 42. Que sont la finance décentralisée (DeFi) et les ICO ? », , *Les blockchains en 50 questions. Comprendre le fonctionnement de cette technologie*, sous la direction de Dumas Jean-Guillaume, et al. Dunod, 2022, pp. 229-237.

- **Creation of stablecoins:** certain Dapps (such as MakerDAO) are designed to create stablecoins, crypto currencies whose price follows that of a legal tender such as the dollar or euro.
- **Decentralized insurance policy:** this is a collaborative insurance system.

Decentralized finance is seen as an innovative way of strengthening financial inclusion, which is the direct counterpart of social inclusion. While the average bank penetration rate is estimated at over 80% in Europe⁸, it is much lower in many other regions.

According to a World Bank report, only 43% of adults in sub-Saharan Africa had access to a bank account in 2018, compared with 54% in North Africa. In 2017, the World Bank estimated that around 1.7 billion adults had no access to basic financial services⁹. The phenomenon of banking exclusion is generated by social exclusion and poverty¹⁰. Very often, people suffer from the high cost of financial services, the great geographical remoteness of banking establishments, and the lack of official documents¹¹.

Decentralized finance addresses those issues by enabling individuals to access financial services 24 hours a day, while remaining sovereign over their funds. Anyone with Internet connection can access DeFi services: there are no entrance barriers (such as income or nationality requirements). However, access to decentralized finance is contingent on the creation of a crypto-asset wallet by the user. A wallet is to crypto currency what a bank account is to fiat money.

⁸ <https://www.economie.gouv.fr/facileco/gestion-des-moyens-paiement>

⁹ World Bank Group, Base de données – Global Findex – 2017, page 4.

¹⁰ Gloukoviezzoff, G. (2004). De la bancarisation de masse à l'exclusion bancaire puis sociale. *Revue française des affaires sociales*, , 9-38. <https://doi.org/10.3917/rfas.043.0009>

¹¹ <http://www.bsi-economics.org/820-inclusion-fi-afrique-az#:~:text=L'exclusion%20financi%C3%A8re%20de%20la,le%20manque%20de%20documents%20officiels.>

4. The rise of decentralized finance

2020 was a crucial year for the decentralized finance field. In order to estimate the importance of a decentralized protocol, the notion of Total Value Locked (TVL) on the protocol is taken into account.

It reflects the total amount of funds deposited by users in a DeFi protocol. This metric reflects the liquidity, popularity, and financial strength of a decentralized protocol. The higher the TVL is, the more stable and secure the protocol is likely to be, as the volatility of a market is intrinsically linked to its depth.

Over the past five years, total value locked (TVL) on Dapps has grown at a steady pace, topping \$1 billion in May 2020. The year 2020 will close with \$15 billion in total value locked (TVL) on protocols. In December 2021, this TVL reached its peak with \$180 billion blocked¹².

By February 2023, the total value locked on all protocols stood at over \$50 billion. This significant drop in value is directly linked to the bear market that crypto assets have been experiencing since 2021, reinforced by the collapse of the stablecoin TerraUSD (UST) in May 2022.

However, the crypto-asset market has proved resilient, with the total capitalization of all crypto-assets rising to over \$1 trillion by February 2023¹³.

¹² <https://defillama.com/>

¹³ <https://coinmarketcap.com/>, au 17 février 2023.

5. Key features of decentralized finance

Decentralized finance inherited from the properties of blockchain technology:

- **DEFi native digital system.** It operates without a controlling body thanks to blockchain and smart-contract technology. Transactions are therefore peer-to-peer.
- A **resilient financial system** due to its decentralized and distributed nature.
- **Permissionless and transparent.** This financial system is open to all, in terms of use, consultation and participation in its construction ¹⁴.
- **Interoperable:** decentralized finance is made up of numerous IT protocols, which are designed to work together via "bridges". A bridge is a computer protocol used to make two different blockchains interoperable, enabling the circulation of tokens between them.
- **Programmable:** through the use of smart-contracts, the will of the parties is automatically executed when the conditions determined by the co-contractors are met.
- **Censorship resistant.**

DeFi vs CeFi

DeFi	CeFi
→ Confidence in the resilience of a computer program	→ Trust in a central entity (bank, insurance company, etc.)
→ Open	→ Exclusive
→ Efficient (Cost and speed)	→ Slow & costly system

¹⁴ Dumas, Jean-Guillaume, et al. « 42. Que sont la finance décentralisée (DeFi) et les ICO ? », , *Les blockchains en 50 questions. Comprendre le fonctionnement de cette technologie*, sous la direction de Dumas Jean-Guillaume, et al. Dunod, 2022, pp. 229-237.

However, the notion of decentralization varies from one protocol to another. In some cases, the decentralization of a protocol is artificially constructed by centralized players. The latter will then be able to make unilateral decisions, which may affect the protocol and its users¹⁵.

Several criteria need to be considered when estimating the decentralization of a protocol, such as the degree of decentralization of the underlying blockchain, the protocol's governance rules, tokenomics (token issuance policy), and governance token holders (supply distribution: quantity of tokens in circulation).

While the Bitcoin and Ethereum protocols are open source and transparent, not all DeFi applications are. Some smart contracts are not transparent and can be modified unilaterally by the project team. In such cases, they are likely to contain backdoors (fraudulent flaws in the smart contract) or rug pull risks (sudden, fraudulent withdrawal of all funds by the protocol managers).

6. Example of three major protocols in the DeFi ecosystem



Uniswap – Decentralized exchange platform

Uniswap is a set of computer protocols based on the Ethereum blockchain, enabling cryptocurrencies to be exchanged and traded without trusted intermediaries¹⁶.

- Trading volume in 24 hours: \$1.06 billion. (02/14/2023)
- TVL: \$4 billion (February 2023)

¹⁵ ADAN, <https://www.adan.eu/publication/la-defi-50-nuances-de-decentralisation-2/>

¹⁶ <https://academy.binance.com/fr/articles/what-is-uniswap-and-how-does-it-work>



AAVE – Decentralized lending and borrowing

AAVE is both a company and a decentralized protocol, enabling Ether (ETH) holders to lend their funds to other users, in return for a fee. Interest rates fluctuate according to the volume of borrowing demand and the supply of loans..

- TVL: \$4.64 billion (February 2023)



Lido – Investment

Lido is the first decentralized finance protocol in terms of total locked-in value. Lido enables holders of Ether tokens (ETH) to immobilize them on the Lido protocol (staking operation), and to receive in exchange the same amount of stETH (Lido Staked ETH), the token native to the Lido protocol. Theoretically, 1 stETH must have the same nominal value as one ETH for the system to work.

The immobilization of ETH on the Lido protocol enables the user to earn a daily return. In addition, stETH collected by the user can be immobilized in other decentralized protocols to generate additional returns.

By immobilizing their tokens on the Lido platform, users retain ownership of them and can recover them by repaying the stETH collected.

Solana (SOL), Polygon (MATIC), Polkadot (DOT) and Kusama (KSM) tokens can also be immobilized on Lido.

- TVL: \$4.13 billion (February 2023)

The Ethereum blockchain remains the most sought-after for the development of traditional finance tools. Currently, \$28.34 billion is locked on Ethereum blockchain smart contracts ¹⁷.

¹⁷ Février 2023

7. Criticism and risks

As with any innovation, decentralized finance brings new risks.

Firstly, the risk is technological: smart contracts are not free of security flaws. In the presence of a flaw in a decentralized protocol, a malicious agent could succeed in siphoning off funds.

There is also a structural risk: decentralized protocols may present a risk of instability, due to disorganized governance or insufficient liquidity reserves. Finally, the risk is financial: the volatility of the crypto-asset market and the use of leverage effects are likely to generate significant risks of capital loss for users.

While this promising ecosystem represents an alternative to traditional banking and financial sector products, its mass adoption will depend on the popularization of disruptive technologies among the general public.

Countries with the lowest rates of bank account penetration are generally underdeveloped, leading to technological illiteracy. It is therefore difficult to argue that decentralized finance will be the obvious solution.

8. Challenges and opportunities for our businesses

The emergence of decentralized finance (DeFi) has ushered in a new era in the financial industry, offering an accessible, transparent and decentralized alternative for financial transactions. This new technology raises many challenges for auditing, consulting and accounting professionals. Indeed, the processes and technologies involved in DeFi are complex and constantly evolving, requiring expertise and constant training to be understood and used effectively.

Similarly, regulatory compliance is an important aspect, as regulators seek to apply existing laws and regulations to financial transactions conducted via blockchains. Professionals, need to be able to understand the regulations applicable in different countries and advise their customers on best practices for complying with these rules.

However, despite these new challenges, DeFi offers many opportunities for industry professionals, particularly in audit and insurance, tax and regulatory consultancy, and risk and compliance management.

The emergence of decentralized applications (Dapps) and smart contracts has enabled professionals to provide new value-added services to their customers. For example, they can help design and implement smart contracts, audit smart contracts or transactions carried out via blockchains, and advise clients on how to comply with applicable regulations.

To conclude, Decentralized Finance offers exciting opportunities for accounting and finance professionals, but these opportunities require constant expertise and training to be seized effectively. Professionals who invest in learning these new technologies and processes will be better prepared to help their clients navigate the ever-changing world of DeFi.

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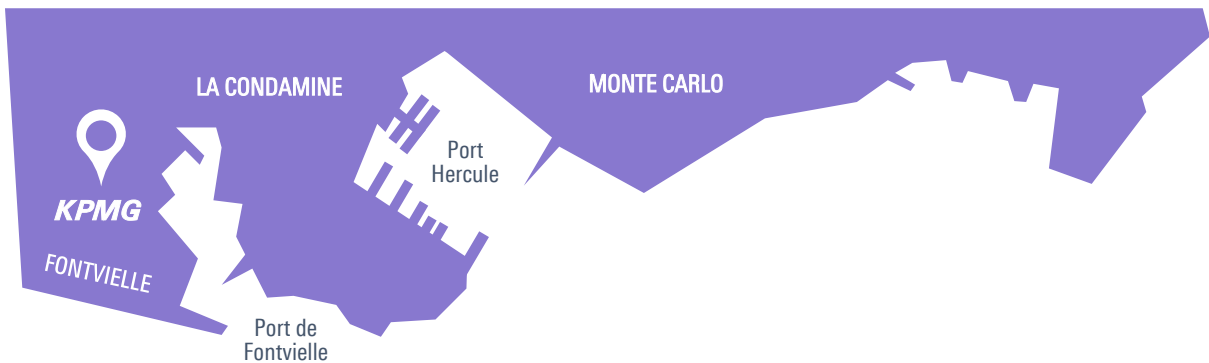
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