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Decentralised Finance (DeFi)

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Decentralised Finance, known as DeFi, is a technology which utilises distributed ledger technology (DLT) to offer autonomous and decentralised financial services. On 25 April 2023, the MFSA held a workshop on the topic of DeFi which aimed to provide an overview of the technology, in order to shed light on its ongoing development within the financial services sector, as well as showcase selected DeFi protocols.

In terms of DeFi, such technology encompasses the elements of composability, competition, and automation. Consequently, it enables financial services to operate without reliance on traditional intermediaries, potentially paving the way for a transformative future in the financial services sector.

To this end, protocols offer the capability to pool crypto-assets through a peer-to-pool model, allowing users to contribute capital in exchange for fees and possible governance participation within a protocol. However, in the realm of DeFi and similar emerging technologies, there are inherent technological complexities and concerns, including the risk of money laundering and other economic and technological shortcomings related to cases involving stablecoin destabilisation and protocol hacks.

The DeFi Stack

> The term 'DeFi Stack', as commonly addressed within the context of DeFi, refers to the structured technical foundation of DeFi technology, consisting of three (3) main layers and a further five (5) sub-layers, each involving associated entities such as validators and DeFi users.
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> **Interface Layer**
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> - **Front-end Interface:** This refers to the interface that DeFi users are met with when accessing and using DeFi applications.
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> **Application Layer**
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> - **Crypto-assets:** These assets represent economic value to users of DeFi applications on a blockchain and can be categorised into various types; including the distinction between fungible

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and non-fungible tokens (NFTs). NFTs represent unique and non-interchangeable tokens on a blockchain, whereas fungible tokens are individual and interchangeable units on a blockchain.

- **DeFi Protocols:** DeFi Protocols execute program functions that enable them to offer financial services to users via smart contracts. These protocols can facilitate the exchange of crypto-assets directly, eliminating the need for intermediaries, either through order book systems or Automated Market Maker Decentralised Exchanges (DEXes). Additionally, these protocols may also facilitate the borrowing and lending of assets, as seen in projects like Compound and MakerDAO, and the creation of synthetic assets through derivatives protocols such as Synthetix and dYdX.

- **DeFi Compositions:** Often denoted as 'Financial Lego', DeFi composition encapsulates the concept of creating new financial functionalities by leveraging the utilisation of different DeFi Protocol smart contracts within one single transaction. Examples of such compositions include the communication between a DEX trading pair contract (ex: wETH/UST) and a specific token contract (ex: USDT), or the analysis of diverse DEX prices via aggregators.

Settlement Layer

- **Consensus Mechanism, Blockchain State and Program Execution:** The settlement layer of a blockchain comprises interconnected technical primitives that collectively set the foundation for DeFi application development on the DLT application layer, as well as front-end interfaces on the interface layer. The consensus mechanism refers to the agreement on a blockchain's state across all the network's nodes and encompasses changes in a blockchain's state resulting from executed transactions, smart contract interactions, or account balance updates.

Showcase - Lido Finance

An introduction to DeFi ecosystem was followed by a showcase of Lido Finance protocol that offers liquid staking services on the Ethereum network. Lido allows users to earn staking rewards through its Middleware, while retaining control of their assets. This is achieved through creation of synthetic assets that mirror the underlying assets' value on a 1:1 basis. Consequently, the ability to utilise locked-up capital may be noted as a benefit, along with the reduced infrastructure costs. However, it is crucial to acknowledge that certain risks persist, with the most pertinent being the concentration risks associated with staked Ethereum.

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> That said, it is the members of the DAO who ensure the efficiency and stability of Lido. Lido DAO has several responsibilities, including updating liquid staking protocol parameters, compensating full-time contributors, and managing node operators, among other.

Want to know more about the Decentralised Finance and its applications, then check our FinSights section. Should you have any queries or wish to discuss your ideas, even within the context of our MFSA Fintech Regulatory Sandbox, contact us at fintech@mfsa.mt.

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