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THE SUDDEN RISE OF DEFI:

OPPORTUNITIES AND RISKS FOR FINANCIAL SERVICES

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DECENTRALISED FINANCE

A surge of interest in decentralised finance is leading the market to question whether this is a bubble ready to burst, or whether it can overcome its growing pains to become a sustainable alternative to services offered by traditional centralised finance.

The proponents of decentralised finance will argue that it casts the net wide to individuals and institutions who can access financial applications, that perhaps couldn't before. And without the need for a trusted intermediary inside a permissionless ecosystem.

The detractors will claim that the financial services sector has already invested $1.7bn in blockchain (according to Greenwich Associates). And yet beyond the volatile world of bitcoin, it has had very little impact. Furthermore, regulation is desperately required and there are low levels of liquidity resulting in low utilisation amongst established enterprises.

But challenges in traditional finance must also be considered in the context of socio-economic development. As it stands, centralised finance (CeFi) encourages financial institutions with larger balance sheets to pursue conglomeration and increase shareholder value through rent-seeking behaviour. But the next wave of demand for capital and financial services will stem from emerging economies and an SME industry underserved by traditional finance.

IS CENTRALISED FINANCE STIFLING GROWTH?

The importance of SMEs to the European economy cannot be underestimated. The most recent research from the European Parliament, highlighted how 24 million SMEs generated more than €7 trillion[1] to the EU economy.

Despite the value SMEs add through innovation and entrepreneurship, their banking needs have not been met, because for centuries, financial services have been delivered through centralised parties who act as trusted intermediaries between economic agents.

An important aspect of an intermediary is to assess the risk-return profile of investments, which often leaves the SME market high and dry because they cannot meet the necessary and regulatory credit checks. As a result, SMEs enjoy less access to external finance and pay higher costs for transactions and premiums against risk.

SMEs are not the only 'under-banked'. Many countries still struggle to provide reliable banking accessibility and financial stability for individuals, leaving 1.7 billion[2] adults without an account at a financial institution or through a mobile money provider.

A centralised system exacerbates the issue with "Know Your Customer" (KYC) and "Anti-Money Laundering" (AML) protocols necessary to open up an account, because individuals in developing economies don't hold a birth certificate or passport. The World Bank believes this represents a $380bn opportunity.

If traditional finance cannot transform the way it identifies individuals, reduce the cost of transactions and appeal to new markets, then that $380bn opportunity, along with SME finance, is going to look for alternatives.

[1] https://ec.europa.eu/docsroom/documents/16341/attachments/2/translations/en/renditions/native

[2] https://globalfindex.worldbank.org/sites/globalfindex/files/chapters/2017 Findex full report_chapter2.pdf

DEFI AS AN ALTERNATIVE?

Decentralised finance, or DeFi, aims to give users an alternative by removing the need to trust centralised parties and opening its doors to the world. This is achieved by building digital services in an open, permissionless, and decentralised manner.

By removing the intermediary and automating many functions, DeFi can provide lower costs, higher degrees of security and privacy, resist censorship, increase accessibility and promote a decision-making democracy.

The ability to borrow funds, take out loans, deposit funds into a savings account, or trade complex financial products, all without asking anyone for permission, is gaining traction. As an example, DeFi service Compound[3] caused a boom when it launched its COMP token in June 2020. Users who provided liquidity to various Compound services would earn the COMP token as reward, earning substantial returns on their assets. Subsequently, many DeFi platforms adopted similar incentive mechanisms, which caused the value of assets in DeFi to surge. (See Exhibit 1)

Due to its level of accessibility, DeFi is arguably well-suited for emerging economies and demographics with limited access to traditional financial services, potentially giving access to credit, exchange, and investment opportunities. However, the overcollateralization required for borrowers to access DeFi loans makes it impractical for these groups, unless they are already crypto owners. Additionally, many DeFi protocols require a certain level of knowledge to use safely, without which users can be inadvertently exposed to risks.

Total Value Locked (USD) in DeFi

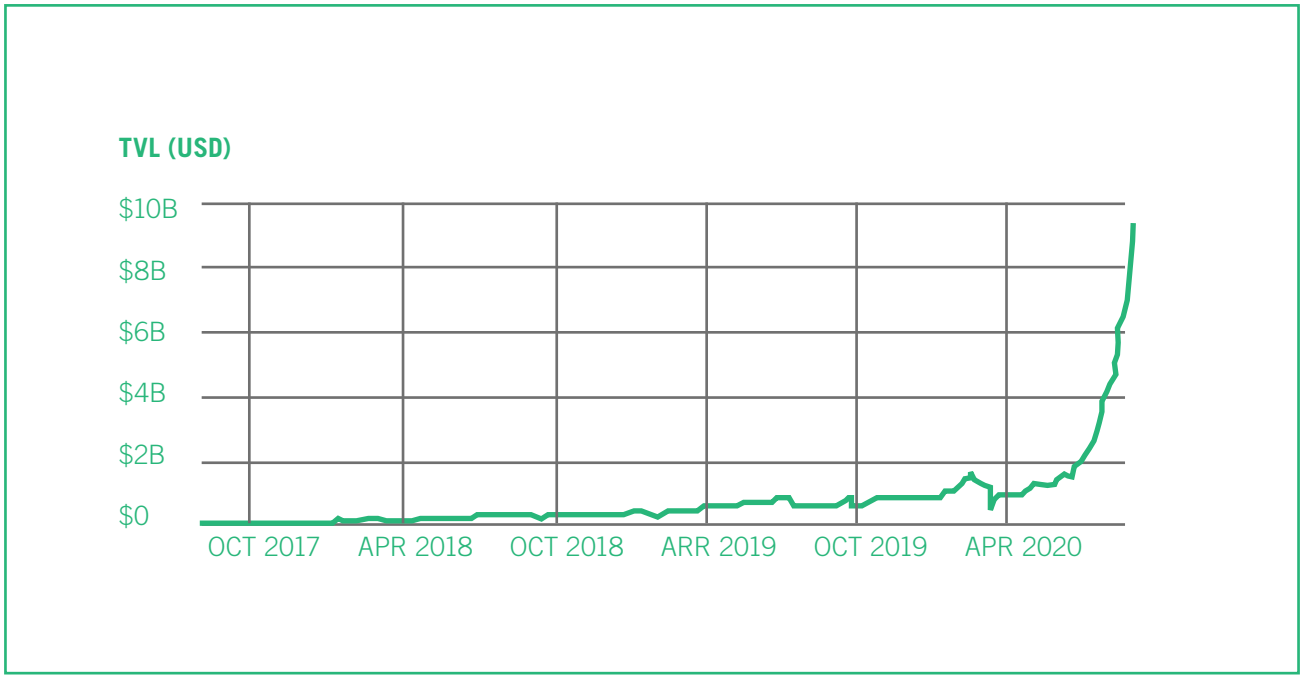

Exhibit 1 I USD Value Locked in DeFi, 2017 to 2020 [Source: DeFi Pulse[4], September 2nd 2020]

[3] https://compound.finance/

[4] https://defipulse.com/

THE STRUCTURE OF DEFI

DeFi refers to financial services that are built on public blockchains and based on open protocols and decentralised applications (dApps), allowing all aspects of the platform to be automated and performed without a central authority or intermediary. Conversely traditional finance relies on intermediaries and centralised institutions.

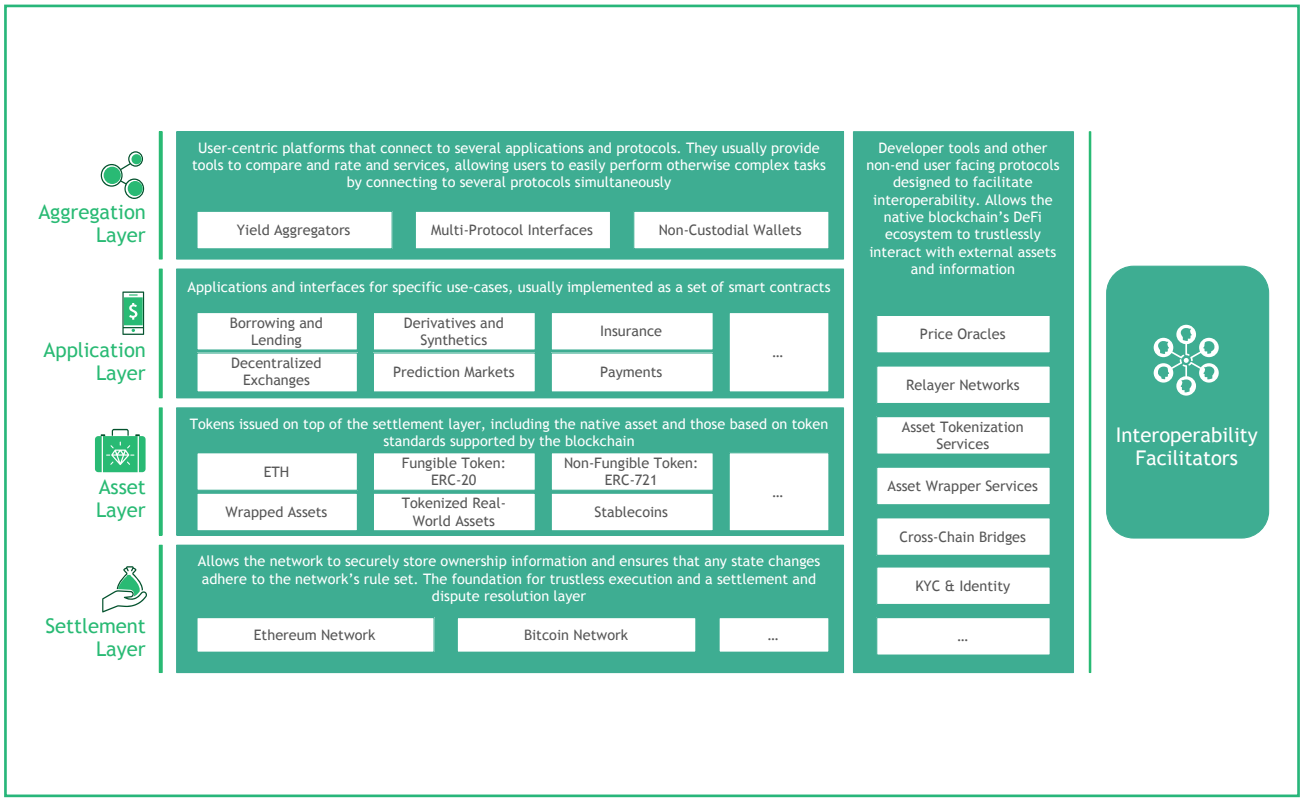

Exhibit 2 | The Decentralised Finance Stack

Source: Fabian Schär, BCG, Crypto.com

Although many cryptocurrencies such as Bitcoin and Ethereum are decentralised and have no intermediaries, the tokens themselves are not inherently a financial service or platform. DeFi only refers to financial services built on programmable blockchains. (See Exhibit 2)

CHARACTERISTICS OF DEFI

Decentralisation in DeFi is built upon multiple layers, with each contributing to DeFi's unique characteristics. (See Exhibit 3)

CHARACTERISTIC	NOTES
DISINTERMEDIATION	Traditional financial services require the existence of a trusted third party to act as intermediaries. For DeFi, assets are escrowed in smart contracts on the blockchain. No parties, other than the user himself, can control the movement of funds unless certain conditions are met.
PERMISSIONLESS AND BORDERLESS	Because the vast majority of DeFi protocols are built in a permissionless fashion and all smart contracts live on-chain, the platforms are by design not dependent on KYC analysis to function. Anybody with an internet connection can use DeFi services.
AUTONOMOUS AND SELFSUSTAINING	All functionality in DeFi is codified on smart contracts that are validated and executed on public blockchains, which enables liquidity pooling and algorithmic economic incentives for the public to contribute. As a result, DeFi protocols have the capacity to provide their services completely autonomously.
OPEN SOURCE AND TRANSPARENT	One of the core philosophies of DeFi is that everything should be open source. Anyone can audit open source code to test for security vulnerabilities. Furthermore, the public is able to interpret how the system works, which makes unnoticed and arbitrary changes difficult to enact.
LOW OVERHEAD	Since all functions are executed by smart contracts, there is no back-end work that must be done by humans. This means that once the system is set up, there can theoretically be no costs associated with the ongoing operation of the service.
DYNAMIC	Interest payments in DeFi can be made as often as it takes one block to be mined (10-15 seconds), which is much more dynamic and consumer-friendly than every few months.
ATOMIC	Transactions can also occur 'atomically,' which allows a single network request to comprise multiple transactions across multiple protocols.
COMPOSABLE AND MODULAR	One of DeFi's most attractive features, protocols can be built on top of one another to enhance functionality. This connected web of protocols forms the DeFi stack that are all interoperable. Furthermore, protocols can be disassembled and reassembled to form new products.

Exhibit 3 I Characteristics of DeFi

Source: BCG and Crypto.com

THE GROWING PAINS

There is no denying that flaws exist in the world of DeFi, and if it's to be accepted beyond the fringes of financial society, there are 6 critical improvements crucial for its future growth and adoption.

1. Blockchain Throughput and High Network Fees

The public blockchains underlying DeFi are currently unequipped to process large volumes of data at a scalable speed. While Visa can process 24,000 transactions per second (TPS), the Ethereum network that is predominately used for DeFi can process just 15 transactions per second (TPS).

Requests can also take anywhere from a few seconds to ten minutes depending on network congestion. This type of delay can hinder the user experience and is likely to be a deal breaker for institutional players who require speed and certainty of execution.

Network usage is also correlated with network fees and as the volume of on-chain transactions increase, the network fees become disproportionately high compared to a transaction's size.

In extreme cases the network can even fail to process transactions that do not set extremely high network fees. On March 12th 2020, during the peak of market volatility, prices for transactions spiked to four times its normal levels, from $1 for a regular transfer to $10 for a more complex interaction. This caused numerous issues in the Ethereum DeFi ecosystem, exemplified by the MakerDAO zero-dollar collateral liquidations[5].

In order for DeFi to be considered by centralised finance, transaction latency must be cut significantly by increasing throughput to make transactions near-instantaneous, if not to match the speed of centralised service providers. ETH 2.0, once fully implemented, could be the silver bullet DeFi has been waiting for with a capability to handle 100,000 transactions per second.

2. Currently Limited Liquidity

Despite impressive growth, it must be noted that DeFi is still small (roughly $9.5 billion as of September 2020) when compared to the US$275 billion market cap for all cryptocurrencies. As a result, DeFi cannot support the higher liquidity demands of larger market participants. However, this could change quickly given the market's explosive growth - between June and August 2020, average daily volumes on decentralised exchanges grew from $50 million to over $300 million.

3. Security & Smart Contract Risk

Arguably the most significant drawback in DeFi is smart contract risk. Instead of centralised custody and servers, participants have to trust that smart contracts do not have any vulnerabilities that put assets at risk. In a way, DeFi replaces custodial risk with smart contract risk, which has allowed attackers to steal funds escrowed in smart contracts.

The most prominent attacks involve the exploitation of bugs in code and the manipulation of external price feeds for assets within protocols (otherwise known as price oracles).

This occurred twice in February 2020[6] on the DeFi lending platform bZx, when an attack manipulated the oracle price of collateral on two occasions. This allowed the attacker to borrow more than they were allowed, leaving bZx lenders with combined losses of almost US$1 million.

The most famous attack was in 2016[7] on one of the original DeFi protocols- the DAO (Decentralised Autonomous Organisation). An attacker drained over 3.6 million ETH (worth $72 million at the time) from the DAO's smart contracts. The Ethereum community agreed to return funds to DAO investors via a "hard fork"[8] of the network into what is now known as Ethereum (ETH) and Ethereum Classic (ETC).

[5] https://medium.com/@whiterabbit_hq/black-thursday-for-makerdao-8-32-million-was-liquidated-for-0-dai-36b83cac56b6

[6] https://www.coindesk.com/everything-you-ever-wanted-to-know-about-the-defi-flash-loan-attack

[7] https://www.coindesk.com/understanding-dao-hack-journalists

[8] https://crypto.com/en/university/article.html?category=technology&page=how-does-bitcoin-work

Detractors point towards these hacks as reasons for why DeFi is no better than centralised services. Each attack gives rise to a slew of articles and arguments on why DeFi is fatally flawed, and will always need centralised interference to reverse damage from attacks.

But each attack on DeFi exposes development flaws, reducing the odds that future projects will make similar mistakes. Attacks also encourage more rigorous security audits and bug bounty programs to catch vulnerabilities before they result in user losses. Over time, DeFi will likely become increasingly secure, ultimately achieving a level of security and user trust that centralised platforms will be hard pressed to match.

In the meantime, the incidence rate for DeFi hacks with no recourse for victims is still too high to pose a substantial threat to traditional finance. So far in 2020, almost $29 million has been stolen from DeFi, although a large portion of those funds have been returned by the attackers. This must change if DeFi is to compete from a security perspective.

Security must be at the forefront of developers' minds when deploying code, and rigorous security audits and bug bounty programs must be implemented.

4. Over-Collateralized

On decentralised lending platforms, all loans currently require more value deposited as collateral than the borrower is able to withdraw. This is because there are no on-chain identity, KYC, or credit score protocols that have gained enough traction to facilitate unsecured credit on a large scale.

In order to be considered by traditional finance as an additional service in unsecured lending, this kind of infrastructure must be in place.

5. Regulatory Risk

DeFi operates within areas that traditionally have significant oversight from governments and regulatory bodies around the world who wish to protect unknowing users from scams and high-risk products.

Since DeFi protocols have been designed to be permissionless, anyone in any country can theoretically access them without regulatory compliance. Whilst this democratises DeFi for the greater good, regulators are concerned it will become a haven for individuals who seek to illegally obtain access to financial services.

Judging by the current regulatory trends of greater KYC and other compliance requirements such as the FATF Travel Rule, DeFi could eventually fall under the scope of global regulators as it grows in scale. As such, DeFi may become partially permissioned, using decentralised identity and address checking services to block certain users from its use.

Another possibility is that regulators will deem the compliance requirements imposed on centralised exchanges (the primary gateway into the crypto ecosystem) to be sufficient. The FATF recommendation as of today is that if the DeFi protocol is sufficiently decentralised and the entity behind it is not involved in day-to-day operations, it may not be classified as Virtual Asset Service Providers (VASPs) and hence is immune from the Travel Rule.

6. Consolidation of DeFi Protocols Around a Single Network

The world of DeFi mostly revolves around the Ethereum network. According to DeFi Prime[9], Ethereum-based DeFi represents 81% of all value locked in DeFi protocols, with 9% in Bitcoin, and the rest in EOS and other smaller networks. This consolidation, while it can be explained by the natural positive feedback loop between liquidity, returns, and utilization, can become a risk to consider. Technical issues on the underlying protocol (network congestion, bugs, security issues, etc.) could compromise all protocols running on that network.

[9] https://defiprime.com/

THE GROWING MATURITY OF DEFI

The challenges are widely recognised, and the development community is trouble-shooting problems with better code and new forms of interoperability like atomic swaps and wrapped tokens.

Audits, bug bounties, open-source commitments and a community-led approach to security concerns will also add to a new level of trust in DeFi. And governments will also begin to regulate over assets, which will be a welcomed framework for traditional investors who are obliged to stay within legal parameters.

Solutions that facilitate liquidity are also imperative; a liquid market will increase the user-base, providing frictionless transfer across different blockchains and their DApps. For example, in order to improve the capacity of the Ethereum network, developers are planning to introduce Ethereum version 2. By introducing upgraded infrastructure, significant gains can be made in the speed of transactions and capacity.

THE POTENTIAL FOR DISRUPTION

If DeFi can successfully address the challenges then there are three key areas of traditional or centralised finance that will be impacted; payments, lending and exchanges.

1. Payments

How payments are made between individuals and institutions has evolved over time, especially since the advent of digital devices. Consequently, several mechanisms were created to support each payment instrument, resulting in different fee structures depending on the number of intermediaries, a transaction's value and the network requirements.

Today, payment cards still dominate the facilitation of transactions. In 2019, the global payment volumes attributed to payment cards and mobile wallets amounted to 52.55%, which is expected to rise in the coming year to reach 65%+, driven by the adoption of mobile wallets[10]

Despite positive forecasting, card infrastructure is not very well established in emerging economies across APAC, LATAM, and Africa, where there is also a high percentage of unbanked consumers. In addition, a growing concern around card fraud has negatively impacted the growth of payment cards used for ecommerce[11].

More globally, the process to clear a transaction can be anything up to 3 days, which impacts on a merchant's working capital. And the average credit card processing cost for a retail business is 1.90%-2.15% and 2.30%-2.50% online. The merchant also bears the risk of chargebacks for up to 90-120 days and the cost, which is expected to total $31 billion by 2020[12].

Conversely, cryptocurrency transfers can be done trustlessly with payment networks (such as the Lightning Network for bitcoin) that are able to reduce the delay in transactions by conducting off-chain transactions with a probabilistic finality.

[10] 2019 BCG study on the evolution of payments

[11] https://www.globaldata.com/cards-dominate-e-commerce-payments-in-west-while-alternative-payments-rule-in-asia-says-globaldata/

[12] https://medium.com/coinmonks/crypto-and-the-payments-industry-c4d76e108125

CeFi vs. DeFi Payments value chain: DeFi disrupts Payments by providing a cheaper and potentially faster alternative already today.

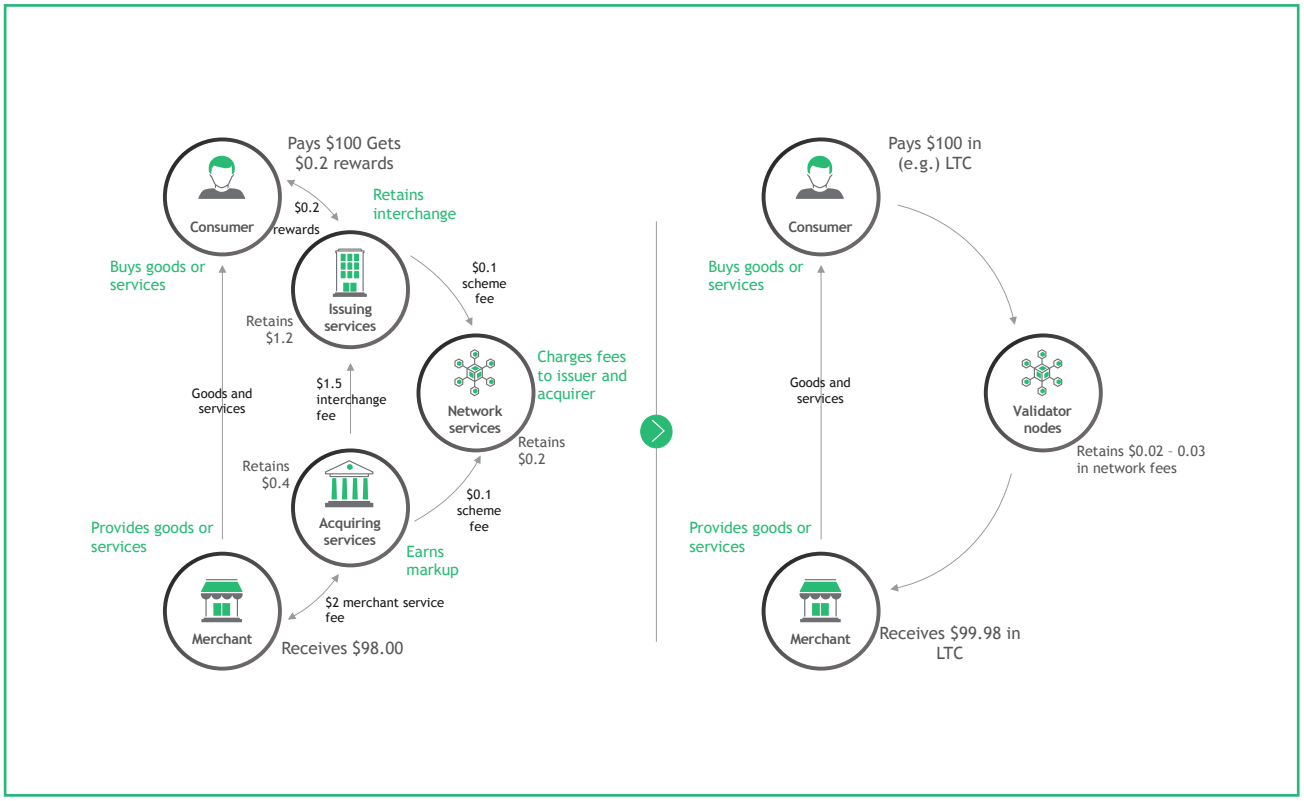

Exhibit 4 I CeFi vs. DeFi Payments value chain

Source: BCG and Crypto.com

And because many wallets use satoshis-per-kilobyte or bitcoins-per-kilobyte to calculate bitcoin transaction fees, they can reduce fees down to $0.006 for BCH depending on the underlying protocol, network congestion and user impatience. (Typically, cryptocurrency exchanges add additional fees, but still less than 1% for transactions happening between various wallets).

Finally, decentralised payment tools are designed to facilitate invoicing and payments between merchants and customers, which can mitigate against chargebacks. Consequently, it is likely that the switch from centralised and traditional payments to a crypto system will come from merchants, who can release capital that would have been otherwise tied up in a centralised processing system.

Comparison of fees between centralised credit cards and DeFi

Litecoin merchants save on credit card fees that can range from 0.5% to 5% (plus a flat fee on each transaction made), but usage of blockchain payment solutions are subject to network fees which can greatly fluctuate depending on (i) the protocol (e.g. LTC vs BTC vs ETH vs BCH) and (ii) the congestion of the network. As opposed to a percentage-based fee, blockchain network fees are fixed at any given moment and do not increase with transaction size (ranging typically from $0.02-2). Hence, blockchain payments solutions greatly favour large value payments.

2. Lending

According to Statista[13], Total Transaction Value in the Marketplace Lending (Consumer) segment is projected to be US $85,353.5m in 2020 and is expected to grow to US$99,243.9m by 2024. Currently, the number of alternative loans is valued at $31,012,100 and is expected to increase to $38,045,700 by 2024.

The current status-quo in a centralised environment is to set fixed rates and earn the difference. For example, if the interest rate for investors is set at 4%, and 10% for borrowers, a bank absorbs the 6%. Except banks set their own rates and earn the difference[14].

Conversely, crypto lending proposes a dynamic rate model, where the borrowing rates fluctuate according to a network's utilisation of lender capital. For example, a market with $10,000 pooled by lenders and $100 requested by borrowers should have a lending interest rate lower than a market with $10,000 pooled by lenders and $1,000 requested by borrowers.

The model allows borrowers to pay less when there is less borrowing demand, and for lenders to receive higher rates when demand is high. Furthermore, since crypto lending currently occurs on a collateralized basis, there is no need for credit checks or KYC processes – smart contracts set the terms, allowing the loan to occur automatically and instantaneously when conditions are met (typically once sufficient collateral is deposited).

And since there is no agent sitting between borrowers and lenders, interest can be passed on to lenders. In the case of DeFi up to 95% of the interest paid by borrowers is passed to lenders, compared to 20-30% in CeFi[15]. In the case of Compound's DAI market, only around 0.2% of the outstanding borrow amount is kept by the protocol to incentivise governance token holders to perform governance functions, versus overwhelmingly higher fractions in CeFi.

The value extracted by banks in traditional lending significantly outpaces the level seen in DeFi lending protocols because banks incur significant labour costs for their operations, and they are able to extract higher economic rents due to their central position.

Conversely, the lending protocols in decentralised finance have minimal ongoing costs that are there to compensate governance token holders for carrying out their functions. In the case of Compound's DAI market, only around 0.2% of the outstanding borrow amount is kept by the protocol to incentivize governance token holders to perform governance functions, versus overwhelmingly higher fractions in CeFi.

The value extracted by banks in traditional lending significantly outpaces the level seen in DeFi lending protocols. The main reason for this is that banks incur significant labour costs for its operations and they are able to extract higher economic rents due to their central position, while decentralized lending protocols have minimal ongoing costs, with the only cost being to compensate governance token holders for carrying out their functions.

[13] https://www.statista.com/outlook/338/100/marketplace-lending--consumer-/worldwide

[14] https://hackernoon.com/how-we-built-constant-a-secured-p2p-lending-platform-that-puts-customers-in-control-6820e32d8402

[15] https://www.sciencedirect.com/science/article/pii/S0939362515000424#tbl0010

CeFi vs. DeFi lending value chain: DeFi disrupts Lending by offering p2p, low-cost lending options.

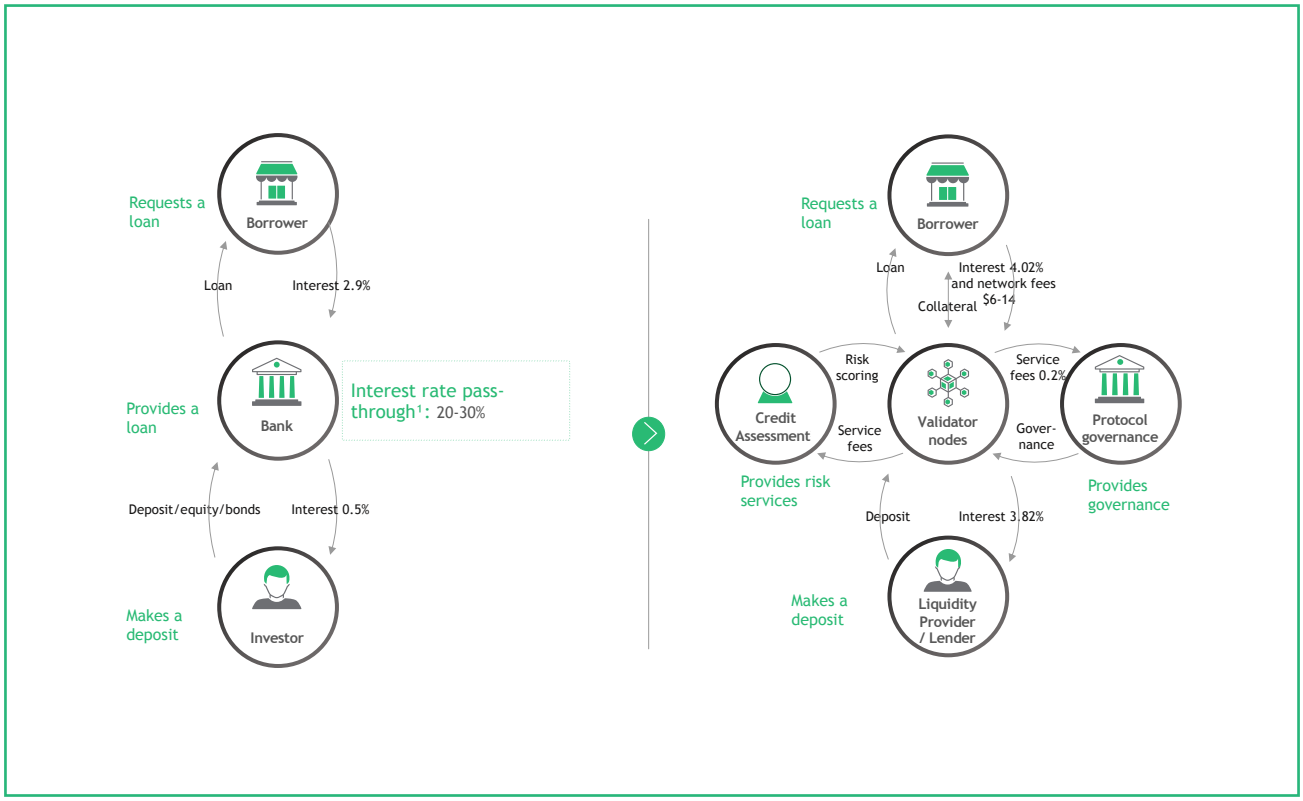

Exhibit 5 I CeFi vs. DeFi lending value chain

Source: BCG and Crypto.com

3. Exchanges

In a traditional exchange value chain, there are three major players that extract value from an investor when he processes a transaction; retail brokers who are the direct link to the end customer, liquidity providers and/or market making firms, and the exchanges themselves that facilitate a trade.

Commissions for trades charged by brokers typically fall in the 0.2-0.3% range, before slippage is taken into consideration. This 0.2-0.3% commission encapsulates depository and custodian fees. Slippage varies per stock, and ranges from 0.03% to 3% of the price, depending on the liquidity available and the level of competition between market makers for the stock.

Unlike centralised exchanges, decentralised exchanges (DEX) perform transactions in a peer-to-peer manner via smart contracts. This allows users to trade without relying on a third party for clearing, settlement, or order matching, eliminating another layer of fees. DEXs can also do this without any account opening processes.

Traditional Exchanges vs. DEX: DEXes provide a low-cost, fast alternative without relying on a 3rd party for clearing and settlement.

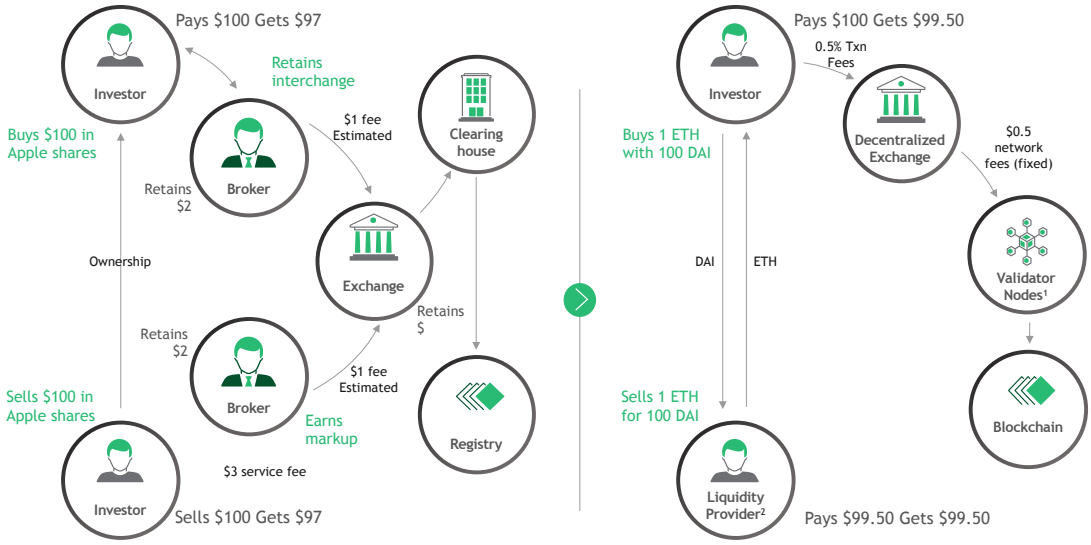

Exhibit 6 I CeFi vs. DeFi exchanges value chain

Source: BCG and Crypto.com

DEXs typically pool liquidity from users in a decentralised manner. This allows traders to deal against pools of liquidity supplied by market makers, eliminating the need for an order book. Token swappers further enable anybody to provide liquidity, which differentiates it from centralised exchanges, where the act of market making is limited to a select group of sophisticated players. Decentralised order book exchanges also exist, and their fee structures are similar to that of token swapper DEXs.

With decentralised exchanges, there are typically three types of cost borne by users; trading fees (like commission), slippage, and network fees. Trading fees for DEXs range from 0.04% to 0.3% (in addition to network fees that run the smart contracts). Since network fees are a fixed amount and do not depend on the size of the transaction, larger trades will see reduced fees as a percentage of trade volume.

In summary, the base costs to investors using traditional exchanges (0.08-0.2%) are comparable to the fees charged for trades on decentralised exchanges (0.04-0.3%). However, practices like front-running and bid/ask spread fees (that can vary between 0.03% to 3.00%) put traditional investors in a disadvantaged position.

And although network fees for decentralised exchanges can be significant during times of network congestion, as blockchain scalability improves over time these costs will become negligible.

DECENTRALISATION OF GOVERNANCE

To overcome its reputational barriers and introduce trust through on-chain governance, DeFi typically focuses on two types of decentralisation: architectural and political[16].

Architectural decentralisation refers to the number of physical nodes that take part in the operation of a system. As a simplified example, the bitcoin network is decentralised because many different nodes work independently to validate transactions. Nodes also monitor each other to ensure that no collusion is happening. This is important since DeFi runs on public, decentralised blockchains such as Ethereum and is a defining hallmark of DeFi.

Decentralisation of governance (political decentralisation) in DeFi is similar in principle to shareholder voting for corporations, where shares are replaced by governance tokens. The primary difference between DeFi's decentralised governance model and corporate governance, however, is that while shareholders can only influence broad changes to the direction that a company takes, token holders in DeFi can influence any element of a protocol, from high-level direction to aspects of its daily operation.

In practice governance decentralisation is hard to achieve because developers must implement a system, and then hand over its governance and maintenance to a distributed group of stakeholders who may not understand how it works or lack the expertise to build and maintain code. For this reason, DeFi protocols that have achieved full political decentralisation are few to none.

Without decentralised governance, one could argue that DeFi cannot fully solve the challenges faced by traditional finance. And if DeFi protocols are not fully decentralised, they are still prone to mismanagement and security breaches, or malicious developers.

Decentralised governance is also a grey area for regulators who must oversee compliance with relevant regulations, such as the recently enacted FATF Travel Rule. Since there are no formal entities governing DeFi protocols, and there are no identities associated with governance token ownership, enforcement becomes difficult.

The two most prominent protocols today that have implemented almost fully decentralised governance systems are MakerDAO and Compound (see exhibit 8). In MakerDAO, MKR token holders can vote on changes to interest rates, eligible collateral types and minimum collateral ratios. Holders of the Compound governance token (COMP) are also able to vote on similar changes to their protocol.

Since votes are placed by staking tokens in support of smart contracts with transparent and auditable instructions, voters know that once a vote is passed, it will be executed. And as long as token ownership is sufficiently diversified, it becomes extremely difficult or expensive for malicious actors to take undue control over a protocol.

[16] https://medium.com/@VitalikButerin/the-meaning-of-decentralization-a0c92b76a274

PROS AND CONS OF DECENTRALISED GOVERNANCE

PROS	Reduces the risk of fraud, mismanagement, and security breaches
	Allows stakeholders to control every single element of the protocol, from high level design to the smallest details
	Fosters an active and vibrant community of stakeholders
CONS	Slow at making big design changes
	Requires protocol to first reach mature stage of development

Exhibit 7 | Pros and Cons of Decentralised Governance

Source: BCG and Crypto.com

PROTOCOL	SCALE OF GOVERNANCE DECENTRALISATION	NOTES
MAKER	• • • •	Governance is mostly decentralized through voting but Maker Foundation still has influence
COMPOUND	• • • •	Migrating to decentralized governance, but like Maker, it is not fully decentralized
SYNTHETIX	• • •	Governance polls are held in Discord but many decisions are made by the developer team
DYDX	• •	Governance currently centralized, with plans to decentralize at a future date
SET PROTOCOL	• •	Governance currently centralized, with plans to decentralize at a future date
UNISWAP	•	There is no formal governance procedure; only Uniswap team has the power to make changes

• – Centralised governance;
• • • • – Decentralised governance with some over-sight from Foundation/founding team

Exhibit 8 | Current State of DeFi Governance Decentralisation

Source: BCG and Crypto.com

TAKING STEPS TOWARDS ADOPTING DEFI

1. Define your DeFi Ecosystem and its Potential

Typically, if you are an FI incumbent, you have already captured certain control points and developed a customer base. You can use these while experimenting with emerging technologies on your quest towards a novel DeFi protocol that would augment your service portfolio. If you are a start-up, as one of the first-movers, you can benefit from entering the competitive arena by rapidly building and deploying a decentrally governed DeFi protocol with existing stakeholders who assume a more clearly defined role within the ecosystem.

Since DeFi protocols are usually n-sided platforms that need users and liquidity to thrive, it is prudent to identify and secure the necessary start-up volume of your DeFi operations by using accessible capital and incentivising your existing users and business partners to join your DeFi protocol.

It is important to understand the role your company can and should play in the ecosystem during the introduction of a DeFi protocol and the associated applications. We have defined four archetypal roles that help an organisation to understand their position. (See Exhibit 9).

An orchestrator requires a large expenditure of capital and tolerance for risk, but provides maximum control over the sources of value and evolution of the DeFi protocol, secured by serving the market with an integrated offering.

A partner will leverage an orchestrator as an additional commercial channel to maintain customer touchpoints, but will have less control over extracting value from the ecosystem.

A contributor will steer an organisation towards DeFi while enabling other players to drive the business forward. A contributor might be an organisation or community providing bulk liquidity or oracle services.

A user benefits from transactional usage of newly developed DeFi protocols with minimum risks and costs yet with a considerable upside driven by service novelty.

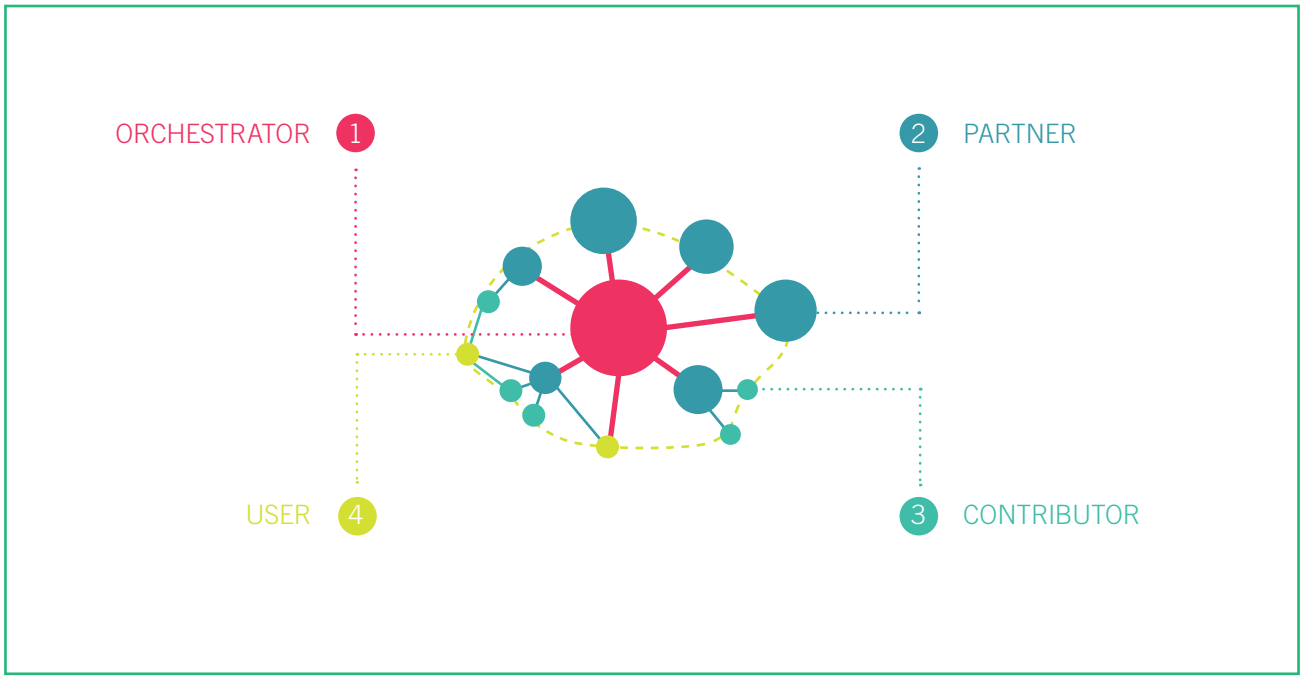

Exhibit 9 | Players can assume various roles in a DeFi ecosystem

Source: BCG and Crypto.com

2. Understand the opportunities for DeFi and decentralisation for your organisation and industry

Map products and services provided by your company against the emerging DeFi ecosystem protocols and in the models consider the costs that DeFi initiatives typically influence:

a. Direct costs – While the impact varies depending on the use case, blockchain technology presents the potential for reducing direct costs and the latency of verification versus traditional methods of authorisation, authentication, clearing, settling, record keeping, and reconciliation used by central intermediaries and counterparties.

b. Privacy costs – Pseudonymous transactions allow for some basic level of privacy, while cryptographic primitives, such as zero-knowledge proofs provide protection of user data. Central intermediaries using traditional transaction verification methods also collect and analyse user data for their commercial benefit and provide more services to users.

c. Censorship costs – There are always costs of central intermediaries denying access to platforms or denying individual transactions. But permissionless DeFi protocols are open to all participants and facilitate verification of all transactions accepted by a consensus of the network with no limitations other than those programmed into the protocol.

d. Settlement and finality risks – The cost and latency incurred when all parties accept a transaction as final can be addressed with blockchain technology DeFi protocols since finality is probabilistic, i.e. increasing as more blocks are added to the blockchain.

e. Cost of trust – When relying on third parties or protocols for accurate verification of transactions and balances for records representing value or property rights, there are always costs to incur. In traditional systems, these costs range from those associated with trusting central intermediaries' decisions, fees, and economic rents to their vault doors, cybersecurity initiatives, procedures of settlements, compliance teams, security guards, and anti-fraud operations. DeFi offers an alternative approach to costs of trust.

f. Economic rents – While profits are a central part of economic incentives, economic rents can arise when producers hold unique or central roles in a market. Due to network effects, such central roles often exist for traditional providers of transaction and balance verification. DeFi protocols address economic rents by providing an alternative to incumbent central intermediaries.

g. Networking costs – An ability to verify the ownership of a digital asset at a lower cost allows a DeFi protocol to not only reach consensus about the history and proposed evolution of a digital asset, but also to define rules for state transitions that are particularly valuable from a network perspective.

3. Place big bets

Companies applying disruptive technologies and building new business models must place big bets. That means positioning respective projects as transformational new revenue initiatives. Therefore, DeFi initiatives will require internal sponsorship and an adequate level investment to secure the first-mover advantage and realise the expected benefits. Lastly, although regulation and compliance, or lack thereof, is one of the key risks that companies need to understand and manage, it also presents the key opportunity for emerging DeFi solutions. (See Exhibit 10).

In Conclusion

Regulation and governance have meant that the centralised finance industry excludes an enormous proportion of the world from access to financial instruments, increasing the wealth divide.

DeFi has the potential to bridge the gap and disrupt traditional finance by making money, payments and other financial services universally accessible. This does not mean it will immediately threaten traditional institutions - Instead DeFi is encouraging commercial FIs, central banks and the crypto community to start collaborating today and build a new-generation of politically and technologically resilient financial solutions - not just for emerging economies but also companies looking to innovate or locked out of traditional finance in developed economies.

With this demand, DeFi is not necessarily a pure bubble about to burst. It might deflate once the hype subsides, but as globalisation progresses and the business ecosystem further shifts towards new-generation business models built upon shared governance and decentralisation, there will be a growing demand for solutions like DeFi which will provide new ways banking, trading and investing - perhaps even setting the standard for economies to climb out of the shadows.

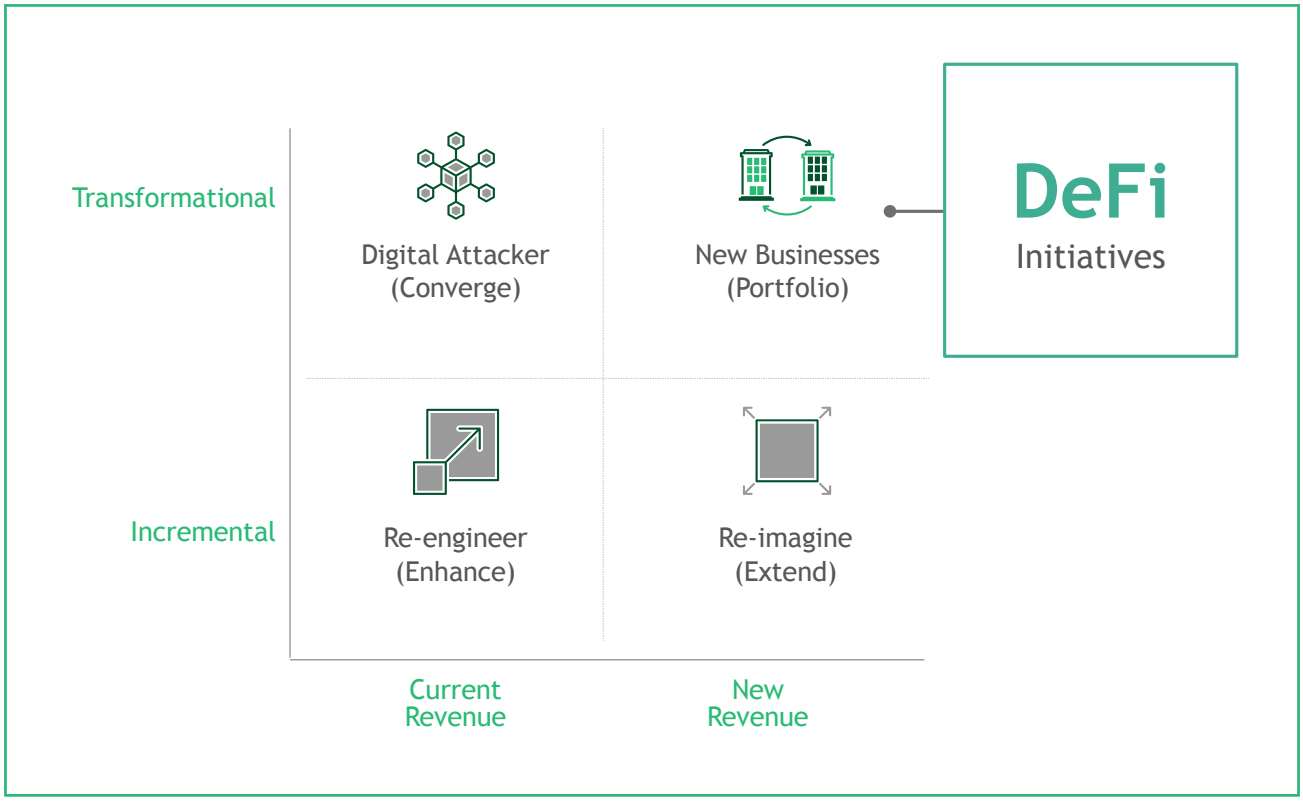

Exhibit 10 | Transformational DeFi initiatives will drive new revenue

Source: BCG and Crypto.com

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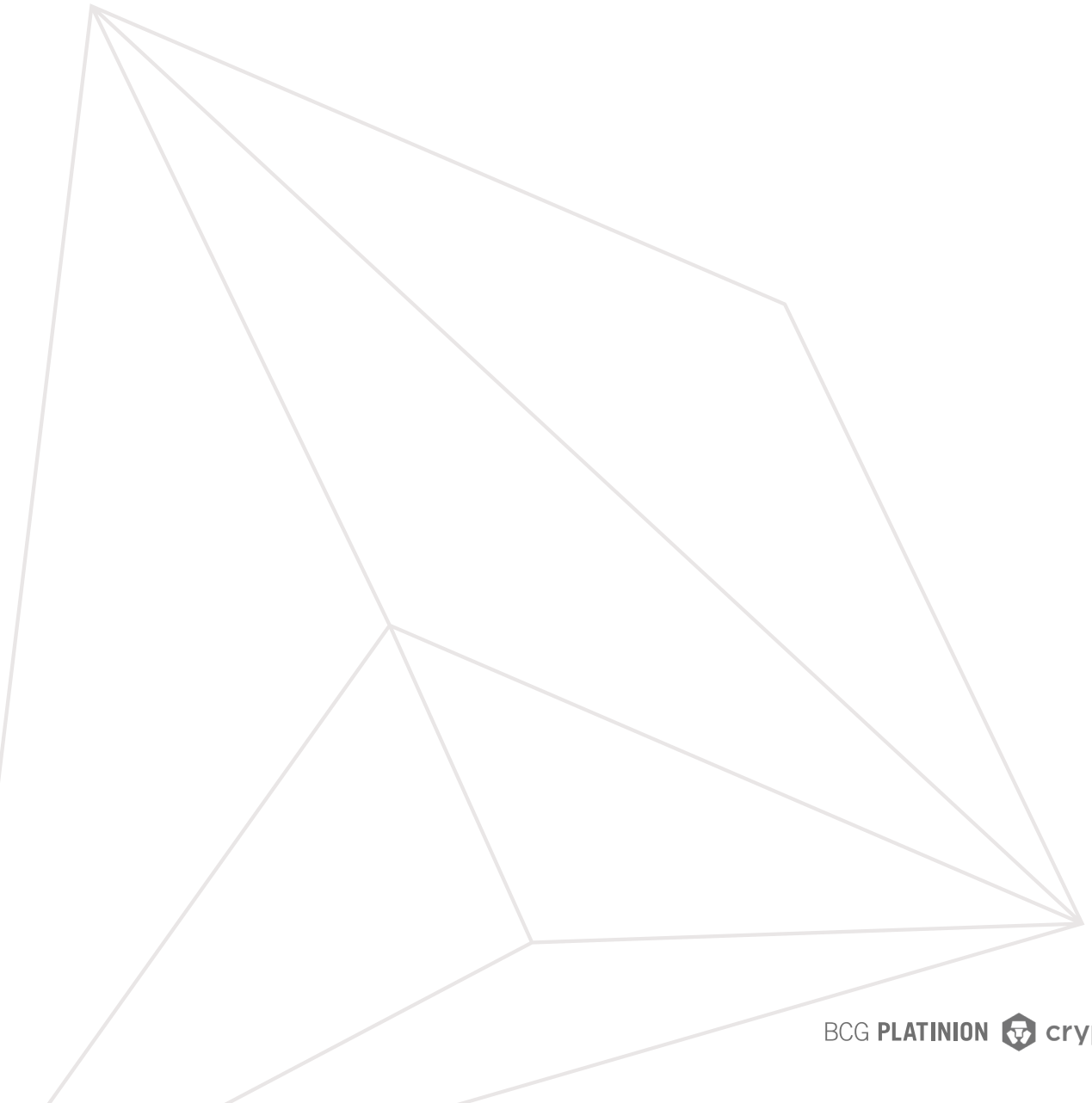
APPENDIX:
DEFI USE CASES AND APPLICATIONS



PROTOCOL	DESCRIPTION
NON-CUSTODIAL WALLETS	Non-custodial wallets provide an interface for users to manage their assets stored on the blockchain and facilitate interoperability between various DeFi protocols
DECENTRALIZED STABLECOINS	Stablecoins are cryptocurrencies whose value is pegged to a fiat currency (e.g.: USD)
BORROWING AND LENDING	These protocols pool lender capital and algorithmically determine interest rates based on supply and demand
EXCHANGES / TOKEN SWAPPERS	Decentralized exchanges (DEX) perform transactions in a peer-to-peer manner via smart contracts. This allows users to trade without relying on a third party for clearing, settlement, or order matching, eliminat a layer of fees
ASSET MANAGEMENT	DeFi asset management protocols allow users to allocate assets to different trading strategies in a non-custodial and trustless way, enforced and automated by smart contract
DERIVATIVES	DeFI derivatives protocols are extensions of DEX to let users issue and trade derivatives products such as options, futures and synthetic assets
PREDICTION MARKETS	These protocols allow anybody to create a prediction market for any real-world event. Bettors can buy shares in the outcomes, whose value represents the likelihood of the event
INSURANCE	DeFi's decentralized nature allows insurance to be operated in a peer-to-peer manner, where insurees po money to underwrite risks, and claims can be assessed by token voting
PAYMENT NETWORKS	Payment networks are created to allow people to spend crypto seamlessly
KYC AND IDENTITY	Protocols that allow for trustless on-chain storage and usage of personal information, which can then be used on platforms with KYC requirements
DEFI INFRASTRUCTURE	Services that themselves do not offer any service to an end-user, but instead serve as a tool for developer and other protocols to use to further enhance functionality
AGGREGATORS	Aggregators tie together different protocols to ease the frictions that come from having to manually inter with each of them separately

Exhibit 11 | Summary of Use Cases

Source: BCG and Crypto.com

As a part of The Boston Consulting Group (BCG), Platinion provides consulting services in design and development of advanced technology solutions that fuel creation of new-generation business models. Today, our presence spans the globe with offices in Europe, North and South America, South Africa and Asia Pacific.

BCG is a global management consulting firm and a world leading advisor on business strategy and transformation. We serve clients in the private, public, and not-for-profit sectors around the world, including more than two-thirds of the Fortune 500. Founded in 1963, BCG is a private company with 15,000 staff globally in 90 offices in 50 countries. In 2017, BCG was ranked 3rd in Fortune's "100 Best Companies to Work For". BCG was ranked #1 in Consulting Magazine's 2016 "Best Firms to Work for" ranking, and for the last six years we have been ranked as a "Best Company" by Working Mothers magazine.

Crypto.com was founded in 2016 on a simple belief: it's a basic human right for everyone to control their money, data and identity. Crypto.com serves over 3 million customers today, providing them with a powerful alternative to traditional financial services through the Crypto.com App, the Crypto.com Card and the Crypto.com Exchange.

Crypto.com is built on a solid foundation of security, privacy and compliance and is the first cryptocurrency company in the world to have ISO/IEC 27701:2019, CCSS Level 3, ISO27001:2013 and PCI:DSS 3.2.1, Level 1 compliance. Crypto.com is headquartered in Hong Kong with a 500+ strong team. Find out more by visiting https://crypto.com. Press inquiries: press@crypto.com

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