# Web3 and Decentralized Finance (DeFi) Integration: Opportunities and Challenges for Traditional Financial Institutions.

Kerim Šabić
*Department of Information Technology*
*International Burch University*
Sarajevo, Bosnia and Herzegovina
kerim.sabic@stu.ibu.edu.ba

Ajla Korman
*Department of Information Technology*
*International Burch University*
Sarajevo, Bosnia and Herzegovina
ajla.korman@stu.ibu.edu.ba

***Abstract* —** This study examines the concept of decentralized finance, DeFi, and how traditional finance, TradFi, can include features that are offered by the decentralized approach. The main idea of this study is to evaluate the suitability of decentralized platforms, to note some of the possibilities and obstacles, and to suggest best approaches for a smooth integration. From the study, it is shown that the integration of the DeFi approach can result in lowering costs and increasing transaction efficiency. The creation of Automated Market Makers (AMMs) and the removal of middlemen that is present in the TradFi, might be key opportunity. All this, together with institutional adoption, artificial intelligence, and new regulations, creates a positive future for DeFi, which Project Guardian and programs led by Banca a d'Italia are great examples of. Finally, the project showcases that both, the concept of DeFi and TradFi have their benefits and solutions and together can improve financial opportunities. This can be done with increased security monitoring and regulatory modifications. DeFi has great potential that could be utilized by both users and organizations.

**Keywords —** Web3, TradFi, DeFi, Integration, Security Protocols, Legal Compliance, Societal Adoption, Complementary Finance Solutions

## I. INTRODUCTION

Traditional finance (TradFi) refers to a financial system that connects institutions such as banks, investment, retail, and insurance companies, as well as other regulatory bodies of one country. Traditional finance was declared as 'traditional' first time in the cryptocurrency industry due to the innovative possibility of trading finance through blockchain technology. Blockchain introduced their version of the web, known as Web3. Its main purpose is the free interaction of people in a decentralized system. Smart contracts coded on blockchain are used to create decentralized finance (DeFi) services and make them available to users. Potential benefits of incorporating DeFi and TradFi into a new business model include unlimited access to anybody with an Internet connection, the ability to negotiate interest rates instead of automatically accepting fixed rates, and autonomy because there is no financial middleman. On the other hand, the new business model may not be easily integrated into society. In addition, people would need some time to get used to the new system, and concerns about security and regulations would arise.

Traditional finance is built on a centralized structure that includes previously mentioned institutions to manage and trade financial assets. Due to its reputation of following strict regulatory and security protocols, TradFi is popular among customers to whom finance's safety is highly important. For instance, TradFi users have to pass thorough and time-consuming processes known as KYC (Know Your Customer), and AML (Anti-Money Laundering) which help TradFi institutions verify customer's identity and ensure safety. However, these processes are not adequate for somebody who wants to stay anonymous. Fortunately, they are not obligatory in DeFi, since the focus is on the user privacy. DeFi operates on an open and permissionless blockchain, meaning that anybody can use it without the permission of a central finance institution. Everybody has unrestricted access to only view transaction records on the blockchain. This demonstrates DeFi's transparency and immutability. Additionally, this helps to lower the level of financial fraud and corruption. DeFi is well-known for its peer-to-peer transactions where two parties lend or exchange financial goods without a financial intermediary. These transactions take place in decentralized exchanges (DEXs). DEX's basis is a form of smart contracts called automated market markers (AMMs) that determine assets' prices based on supply and demand. To participate in DEX, a user has to have a liquidity pool – a collection of digital assets that enable a user to participate in trading. This is similar to TradFi as well, where banks have to hold a specific amount of assets to meet their customers' needs. Another use case of DeFi is stablecoin. A stablecoin is a cryptocurrency whose value is tied to the value of another cryptocurrency, fiat currency, or commodity to avoid the large price instability that is common for cryptocurrencies.

The purpose of this study is to provide evidence for the likelihood of integrating decentralized and traditional finances into one financial solution by reflecting on TradFi's current opportunities and obstacles. This paper will sum up all advantages and disadvantages that Web3 and DeFi have in comparison to TradFi. By addressing all difficulties, this research will offer achievable solutions that traditional finance can use to successfully integrate Web3 and DeFi.

## II. Literature review

One industry expert claims that at the moment DeFi services are not utilized independently from TradFi, rather they are used as an additional tool for people interested in cryptocurrency investing. High profits can be achieved by taking advantage of differences in prices while investing. However, one crypto platform failed because they were investing large amounts of money. The DeFi market is a largely unregulated environment that is developing, and with that risks have emerged. Common ones are market risks, liquidity, money laundering, hack risks, and other operational risks, as well as market manipulation. The anonymity, as well as the immutability of the deployed code, allow risks to have more detrimental consequences. On another note, TradFi is a highly regulated environment, which promises an appropriate level of stability, transparency, and customer protection. Additionally, conventional financial institutions follow risk management frameworks and have established capital reserves to protect against large losses.

Although DeFi risks should not be overlooked, regulators believe that risks do not have large impact on financial stability because of DeFi's limited usage. In addition, authority officials do not know how to cope with DeFi since it is technology–based, operates continuously with users from all over the world, and does not rely on conventional centralized intermediaries.

The core of DeFi is smart contracts that can be used to improve the transaction process. This could help with stock trades, and provide liquidity to the market. Smart contracts could also help with the digitalization of existing financial currencies, which would in addition help with the security issues. This showcases that even though DeFi is at the moment risky and unstable, it has the potential to offer possibilities for financial gains and new services, that cannot be found in traditional financing.

According to a different industry specialist, DeFi protocols appear to have a greater overall security level than TradFi. Compared to $3 billion for DeFi, the top five TradFi losses in 2022 from scams, breaches, and bankruptcies were $178 billion, indicating an improvement in security in the DeFi market. [1]

Stablecoins need collateralization as a guarantee they can be pegged (tied) to another value. Sometimes overcollateralization happens, which is a case when the value exceeds the amount of stablecoin it is guaranteeing for. With crypto trading platforms, there is a lot of overcollateralization due to often cryptocurrency price changes. Consequently, this leads to inefficient use of capital. Some experts suggest that overcollateralization goes against one of the initial DeFi objectives which is to widen access to finance. In contrast, traditional markets have more liquidity, therefore they are more stable and less volatile. DeFi markets are not suitable for long-term financial success since they are smaller and more prone to price and market change.

Also, the blockchain network is partitioned – there is a variety of different blockchains available. These blockchains cannot cooperate which results in higher fees (who pays more, gets validated first) and overcrowding of network with transaction requests (nodes have storage capacity limits). To process all transaction requests, new blockchains are created regularly. Unfortunately, this reduces the efficiency of the whole system and creates bridges across blockchains resulting in higher vulnerability to security breaches. Quite the opposite, banks have created systems that enable them to create joint reserves, easier cooperation, and benefits for users of this service. One example is the European Central Banking (ECB) system, also known as Single Supervisory Mechanism (SSM), who is responsible for stability of banks in European zone. Alongside this, the global economy depends heavily on TradFi to fund infrastructure development, corporate financing, and government operations.

## III. Methodology

Three main market drivers of DeFi are regulation, artificial intelligence, and institutional adoption. Industry experts claim, that DeFi can only be thought of as fully decentralized. All DeFi projects have decentralized and centralized components. On one side, there is artificial intelligence (AI) which removes the need to have an intermediary in a process. On the contrary, centralized components can be regulated, and authority officials are looking for appropriate regulatory organizations for DeFi. One example is Banca d'Italia, a major bank in Italy, that uses TIPS fast payment platform. They use flexible software that is compatible with various decentralized platforms. This setup allows quick transactions that guarantee simultaneous exchange of the cash and the asset (such as a stock or bond), resulting in a seamless and effective operation. As public institutions are starting to implement DeFi components, their regulations have to be modified. Therefore, Banca d'Italia has signed contracts with two Italian universities to write smart contract standards for this type of financial services. Another example is Project Guardian where several big companies joined one another on the venture to help test DeFi services. This included cross-border payments using a public blockchain and tokenized assets to shrink the gap between TradFi and DeFi. It is projected that non-financial businesses will also start to implement Web3 and DeFi at certain amounts. For instance, Google has partnered with cryptocurrency companies, and Amazon has created a new Web3 infrastructure.

In Europe, AML and CFT (Countering the Financing of Terrorism) regulations were updated to broaden their jurisdiction over cryptotransfers. This included data about the cryptoasset, its owner, recipient, and service provider. Institutions within the European Union came to an agreement in June 2022 to include cryptocurrency transfers in the "travel rule" which outlines the information that must be sent along with financial transfers. The criteria state that information about the origin and destination of the asset must be transferred during the transaction and maintained on file by both parties. This is mandatory for all transactions since there is no minimum amount threshold.

To regulate DeFi, a new regulation Markets in Crypto-Assets (MiCA) has been created. MiCA aims to create a legal framework for cryptoassets that aren't currently covered by

EU regulations, such as stablecoins. This includes the great majority of coins used in decentralized finance (DeFi) systems. MiCA aims to provide safety for customers by ensuring financial stability, and creating rules for crypto owners and service providers, i.e. all service providers have to physically present in the EU and get official MiCA's approval to start working. Additionally, MiCA implements security measures such as capital limits, client asset separation, issuer and service provider oversight, and particular disclosure regulations.

## IV. Results & Discussion

When it comes to DeFi, it holds great potential for lowering cost, improving returns, offering new efficient ways for asset exchange, all with minimizing the need for middlemen. One example is AMMs which represent trading venues that continuously determine prices based on orders and available liquidity through the use of mathematical formulas.

DeFi is absolutely an innovative idea that could lead to making of financial systems more efficient. On the other hand, it is important to note that there are many possible financial gains from centralized processes, some of which could include lowering the expenses, price accuracy and transparency.

From the research, we found the following three primary factors driving the DeFi market. The first one is regulations. Regulators believe that the DeFi is not fully decentralized, which automatically gives them control over it. Actually, when you look at the majority of cryptocurrency projects, they have both centralized and decentralized features interconnected, but this has a potential to change and make projects more and more decentralized. The second is artificial intelligence, which will help DeFi by enabling direct peer-to-peer communication. The third is institutional adoption, which will result in DeFi's further growth. The majority of use cases for DeFi will be created with the help of institutions. As they work to provide services for their clients, institutions will help in the promotion and popularization of DeFi. The more institutional engagement focuses on stability, safety, and compliance, increasing customer trust, it will result in more effective services and procedures that benefit both the customers and the market as a whole.

A perfect example which showcases the engagement of institutions in DeFi projects and tests is the Project Guardian. Project Guardian is an initiative of the Monetary Authority of Singapore (MAS), which involved high institutional engagement, helping to explore potential DeFi use cases. This includes closing the gap between traditional and digital banking operations by making use of cross-border payments with tokenized assets and a public blockchain. It is believed that non-financial companies would employ DeFi technology more frequently in addition to institutions. For instance, Amazon has developed new Web3 infrastructure, while Google has collaborated with cryptocurrency partners in this domain.

DeFi creates a different approach to finance, by making use of the digital assets as well as decentralized processes to potentially expand the market for customer needs and offer more to them. Also, some users will use DeFi because it returns the control back to the users, while others will make use of the middleman to explore what DeFi offers, without having to learn everything about it. With this said, DeFi and TradFi need to complement one another by offering better, faster and more secure way for financial operations.

When talking about the potential benefits and drawbacks of DeFi, something we need to mention is security problems. Cyberattack risk is one of the key safety and security concerns. For example, when it comes to cross-chain bridges, chainalysis data draw attention to the number of hacks and cybersecurity problems that may not be present in situations in which the platform does not have custody. Just moving data on and off the platform creates significant danger, which is why decentralized platforms centralize their infrastructure components to help improve transaction governance. However, it's a debate if this still remains pure DeFi if certain off-chain components of the infrastructure or operational technology are being merged.

Another potential challenge, that is present across the liquidity pools, is the possibility of price manipulation in the market. If this is left unchecked and unmaintained, DeFi's integrity and longevity could be compromised. Most of the DeFi's problem originate from its dependence on properly-functioning technology, this includes smart contracts, bridges, and oracles.

One thing that poses a threat to the DeFi is actually stablecoins. Uncontrolled changes in the amount of the value that is locked in DeFi could negatively affect the demand for stablecoins, which is an important factor when it comes to converting between fiat and actual cryptocurrency.

Stablecoins hold significant holdings in the main financial markets and can cause the risk of money market funds if it comes to uncontrollably large liquidation. Traditional finance still has little exposure to cryptocurrency, and this is proved with the survey from 2022 that shows that cryptocurrency make less than 1% of the assets under control of traditional investment funds.

When it comes to the authorities, their primary problem with DeFi is that it does not have a centralized middleman that oversees it. From a policy standpoint, the automatic nature of smart contracts and the absence of a legal person, make it challenging to apply and enforce regulations. Together with this, the number of new organizations involved in the market is increasing as well as new regulations and protocols that are added every day. The understanding of whether the regulatory and supervisory instruments in place are appropriate for use in the context of DeFi presents regulators with a second problem. It has been demonstrated by recent US enforcement efforts that a large number of current regulations might be mapped onto the DeFi market architecture. Some components require further thought since they are unfit for their intended use. In a decentralized infrastructure, this entails determining who is in charge of

daily operations and who may submit the necessary documentation to start the enforcement procedure.

## V. Conclusion

By creating a financial system that is decentralized, meaning removing the centralized middlemen and also making it more accessible and transparent we could completely transform today's known financial industry. The actual opportunity for this is brought about by the concept of DeFi. DeFi brings a lot to the table for today's financial industry, but it is also not perfect. It also has it risks and hazards. Regulations that support accountability, transparency, and risk management must be put in place by regulators in order to properly manage those risks. In order for investors and consumers to be able to make knowledgeable judgments regarding their DeFi investments, financial education is also really important. By offering more transparent, open, and easily available financial services to everybody, DeFi has the potential to completely transform the financial industry.

To fully use the benefits of DeFi, all the stakeholders must work together to take control over the new risks that are brought with new technologies and also guarantee future users security of their assets.

In order to create strong security and risk management frameworks that guard against risks associated with smart contracts, liquidity, cybersecurity, and other possible dangers, developers, regulators, and users must work together. The next thing is making sure that the users have substantial knowledge about DeFi, and are able to make wise and sensible decisions about their assets, which is why educating the users about those financial decisions is crucial. With all this in mind and with the potential future development of DeFi, we can only anticipate that the applications and protocols from DeFi will become more and more present and implemented by the users who will be able to gain benefits from them.

Some of the ideas that could bring all this to life are creating new DeFi platforms and instruments, like insurance policies, stablecoins, trading procedures, and decentralized exchanges (DEXs). All this will bring new clients and organizations resulting in higher investments and making a market more appealing.

## References


[1] Digitialisation and Technology: DeFi Oppourtunities and Challenges, https://www.eurofi.net/wp-content/uploads/2023/11/the-eurofi-high-level-seminar_santiago_defi-opportunities-and-challenges.pdf (accessed May 12, 2024)

[2] Web3: Exploring decentralized technologies and applications for the future of empowerment and ownership, https://www.researchgate.net/publication/376443157_Web3_Exploring_Decentralized_Technologies_and_Applications_for_the_Future_of_Empowerment_and_Ownership (accessed June 8, 2024)

[3] A. Murray, J. Combs, D. Kim, "The promise of a decentralized internet: What is WEB3 and how can firms prepare?," Business Horizons, https://www.sciencedirect.com/science/article/abs/pii/S0007681322000714?via%3Dihub (accessed May 26th, 2024)

[4] CertiK, "The blockchain trilemma: Decentralized, scalable, and secure?," Medium, https://medium.com/certik/the-blockchain-trilemma-decentralized-scalable-and-secure-e9d8c41a87b3 (accessed May 26, 2024)

[5] A. Murray, J. Combs, and D. Kim, "The promise of a decentralized internet: What is WEB3 and how can firms prepare?," Business Horizons.

[6] OECD, Why Decentralised Finance (DEFI) matters and the policy..., https://www.oecd.org/daf/fin/financial-markets/Why-Decentralised-Finance-DeFi-Matters-and-the-Policy-Implications.pdf (accessed June 6, 2024)

[7] M. Truchet, Decentralized finance (DEFI): Opportunities, challenges and policy implications, https://www.eurofi.net/wp-content/uploads/2022/05/eurofi_decentralized-finance-defi_opportunities-challenges-and-policy-implications_paris_february-2022.pdf (accessed May 13, 2024)

[8] H. Anderson, L.White, Decentralised Finance: Use cases, Challenges and Opportunities (November 2022 Edition), https://www.iif.com/portals/0/Files/content/DeFi%20Report%20111320 22.pdf (accessed May 8, 2024)

[9] H. Anderson, L.White, Decentralised Finance: Use cases, Challenges and Opportunities (November 2022 Edition), https://www.iif.com/portals/0/Files/content/DeFi%20Report%20111320 22.pdf (accessed May 8, 2024)

[10] N.V. Gabriel, The potential of web3 regarding decentralized finance – DeFi, https://doi.org/10.47743/jopafl-2023-30-22, (accessed May 13, 2024)

[11] A. Lakhanpal, E. Lacerenza, Deloitte: Responding to the evolving risks that straddle TradFi, DeFi, and CeFi (March 2023 Edition), https://www2.deloitte.com/content/dam/Deloitte/us/Documents/audit/us-risk-management-and-governance-of-digital-assets.pdf, (accessed May 13, 2024)

[12] Views: The EuroFi Magazine (February 2024 Edition), https://www.eurofi.net/wp-content/uploads/2024/02/views-the-eurofi-magazine_ghent_february-2024.pdf, (accessed May 18, 2024)