

Banks V/s P2P Transactions: Who will own the Future of Financial Transactions?

Om Ranashing, Prateek Hajare, Hussain Sheikh, Zenith Shah, Amrita Shirode

^{1,2,3,4}Student, Dept. of Computer Engineering, AISSMS Polytechnic, Maharashtra, India.

⁵Professor, Dept. of Computer Engineering, AISSMS Polytechnic, Maharashtra, India.

Abstract - This paper will first explain how peer-to-peer (P2P) transactions work and how they can dominate the finance marketplace due to the numerous benefits they provide. The article then goes on to discuss 'What is P2P and how it works?' before concluding with how P2P differs from other types of transaction systems that generally require a mediator and some hybrid systems. Despite the fact that the financial market has cracked down on this technology, it is estimated that peer-to-peer transactions systems, including cryptocurrency systems, will hold transactions ranging from 3 to 9 trillion dollars in the coming years. Because of their simple model and direct transfer systems, peer-to-peer transaction systems are the new big guns in the financial industry. However, due to the widespread availability of peer-to-peer (P2P) transaction network systems, all of this has recently changed dramatically.

Key Words: Peer to Peer (P2P), Transactions, Finance, Market.

1. INTRODUCTION

A peer-to-peer (P2P) service is a platform that allows two people to communicate and transfer finances, they communicate directly with one another without the use of a foreign entity, they communicate directly with one another. Instead, the buyer and seller or individuals deal with one another directly through the P2P services. Internet users can connect directly, form groups and collaborate, and make payments to and from has become the norm in millennials who are embracing the rise of fintech and peer-to-peer services thanks to the peer-to-peer movement. This network configuration differs from the traditional method of communicating with and from a central authority. P2P services have progressed beyond being solely web-based. yet they are still commonly thought of as such. Peer-to-peer services cover a wide range of activities, from basic buying and selling to those related to the sharing economy. Some peer-to-peer services do not even require users to pay; instead, they connect people to collaborate on projects, share information, and communicate without the use of a third party.

System Overview of P2P transactions

It is usually quite simple to set up a peer-to-peer payment account. You'll create an account on your preferred platform and link it to your bank account, credit or debit card. To improve security, some apps may require additional information and password verification. After you've created your account, you can search for other users by their username, email address, or phone number.

Following that, sending and receiving money is usually as easy as a few steps away. You select the person or entity you want to transfer money to, the amount of the transaction. The time it takes for money to flow depends on the P2P payment service you choose. It might take a few seconds to many minutes to complete. Many applications keep your money until you tell them to send it to your bank account. A peer-to-peer network is primarily maintained by a dispersed network that connects several users. P2P networks, in general, lack a systemic approach or administrator. Each user has a copy of the files and acts as both a server and a client at the same time. As a result, each user has the ability to download data to other machines. This is what distinguishes peer-to-peer Internet connections from other client-server networks. Traditional network users obtain files and documents from a central server. A peer-to-peer (P2P) network, on the other hand, transports files and documents saved on a computer system.

When a user uploads a document, the option to become the document's administrator is presented to them. When a computer has an interesting file, it becomes a resource and acts as a server from which other computers can download it. Peer-to-peer networks have improved in efficiency and speed through which the transactions take place as the number of users have largely increases. P2P internet connections via internet are also more resistant to cybercrime and cyberattacks because of their scattered network topology.

1.2 Security analysis of P2P systems:

The Internet is a network of interconnected systems where no single entity controls network resources or

functions. The potential of genuine messages being intercepted by a maliciously run computer cannot be ruled out. Furthermore, the Internet's routing algorithms are not created to safeguard against malware activity. As a result, unless adequate cryptographic procedures are used, neither secrecy nor authentication of messages sent over the Internet can be guaranteed. When dealing with merchants that provide Internet services, one must likewise use prudence. One form of business that may be expected on the Internet is small merchants.. An adversary can easily set up shop and create a contrived electronic storefront in order to steal information from customers. This means that when funds are transferred from customer to broker, the merchant should not have access to the customer's bank account information or PINs. Finally, in a payment system based on electronic cash, clients must be deemed trustworthy. These attacks include double-spending, and scrip counterfeiting. Only the scrip's producer is aware of these contents. When a scrip is utilised, the producer's lookup the data they have stored and are cleared of its contents, ensuring that the scrip cannot be used again. Faulty scrip: In any payment protocol, a user can be either a merchant or a consumer and develop a scrip, but this scrip can only be used to permit payments with its producer ID. Forgery of scrip: which holds the data, which is the scrip's signature. Any modifications to the information provided in the scrip body can be detected by verifying the scrip's data.

2. Convenience and Robustness of P2P transactions:

One of the most appealing elements of P2P transactions is the ease of use and convenience of being able to send money to a friend or pay a handyman for a repair visit.

Because all transactions are done electronically without the need for an intermediary, P2P systems may have extremely low transaction costs in the range of around 1%, while some systems may not charge any fees at all.

Many consumers profit from significantly lower rates and a high saving rate by eliminating banks and brokers. In many ways, P2P networks are more secure because they are encrypted and have fraud monitoring capabilities. For every transaction, biometrics and automated alarms are being included into some applications and online solutions.

Another advantage of P2P networks is anonymity. The risk of data breaches is lessened because each transaction contains relatively little personally identifiable information.

3. Market Place of P2P Systems:

P2P systems are undoubtedly everywhere in today's world, from e-wallet financing systems like Digital payments and to large blockchain systems, all of which utilise P2P systems. When it comes to the various business sectors it targets, the list is extensive.

1. In digital products like Music, NFTs, and Video graphics:

P2P solutions have successfully and heroically conquered this market. P2P music sharing services , videography services such as Tron and digital art or NFT services are all available.

2. In Blockchain:

Blockchain technology is a system which can be used on peer-to-peer networks combined with advanced cryptographic and distributed system consensus technology, is currently the most popular trend in the financial sector. In the upcoming decades, the blockchain technology is expected to be worth more than 15 trillion dollars, surpassing the GDP of many developing countries . Blockchain is a technology that may be utilised for any type of data storage demand, such as farming, corporate positions, steel mills, food chains, and so on. Blockchain is the hero of P2P networks in any industry that demands data to be stored in a specific database.

3. E-commerce:

P2P systems also have a lot of potential in the e-commerce industry. It can change the current market scenario by completely decentralizing the whole e-commerce industry with just the money required for transfer services which will be completely transparent to the buyers and sellers. Many small business owners, vendors, and other small and micro businesses provide e-commerce services and use peer-to-peer transactions and digital payments because it is convenient for them and their customers.

4. Business :

Businessmen nowadays are fed up with all the lengthy and lethargic processes that banks and other mediators pass them through for simple business transactions, so what they desire is a system that is convenient, easy to use as well as super safe. So many businessmen are shifting to p2p systems with irreversible transaction systems based on cryptographic technology

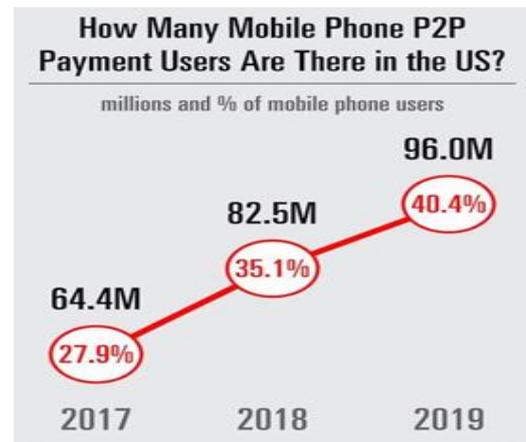
5. Market Analysis of P2P transaction

The global P2P payment market is predicted to grow at a CAGR of approx 17%. Peer-to-peer (P2P) payment is the transfer of funds from one individual's bank account to another's bank account. A P2P transaction is begun and completed by two individuals or entities transferring funds with banks via the internet. The P2P payment system enables individuals to request a certain amount of payment from a specific person among their connections and even an individual from whom the person buys or shares goods. Due to increased smartphone use and digital adoption, the bulk of P2P end users are millennials.

Online banking, mobile banking, and e-commerce are becoming more popular among consumers, as is smartphone usage among the younger generation, which is propelling the P2P payment business forward. Furthermore, a surge in e-commerce operations in emerging nations benefits market growth. However, market development is expected to be impeded by factors such as an increase in data breaches and security issues with P2P payments. Increasing demand for quick and convenient transaction services, as well as expanded use of NFC technologies and blockchain technology in P2P payments, are expected to present attractive market expansion opportunities over the next coming decade.

The mobile online payments market is expected to grow significantly in the next decades. Mobile online payments are the most popular and preferred method, propelling the P2P payment sector in this area, because users only need a smartphone to make mobile payments. Due to several benefits of NFC technology, such as increase in security, faster transaction processing, and growing demand for the technology among end-users, the near field communication sector is predicted to grow at the fastest rate during the upcoming period. Fintech infrastructure is expanding, and corporate and governmental entities are investing heavily in the rising nation. The P2P payment market is dominated, and it is predicted to develop at the fastest rate during the upcoming few years.

Let's look at how P2P systems are doing in USA, the world's largest economy:



[2] The above infographic shows about rising P2P transactions in everyday mobile users.

As you can see, about a quarter of the US population engages in P2P transactions on a regular basis, with the majority of them being youths and businessmen/women.

5. The Effect on Central Banks and economy:

Through their policymaking, central banks play a significant role in the formation of the financial crisis. Fintech has the potential to demolish the traditional financial system, wherein the central authority is held accountable for decisions that affect the economic fortunes of entire countries. Because of its decentralized technology and peer-to-peer innovation. When data or decisions are not composed of a single entity, it becomes a game changer. The coin currency, on the other hand, has its own set of flaws that make a decentralised system based on it difficult to justify. Understanding the role of central banks in an economy is critical. Central bank policymaking contributes to the global financial system's stability. The problem with the aforementioned system is that it places far too much reliance and accountability on the decisions of a single agency. Central banks' ineffective monetary approach has caused in crippling recessions. The complexity of today's financial infrastructure has made the process of central banks in an economy more difficult. As money has taken on digital forms, the pace with which it flows throughout the world has grown tremendously. Financial commodities and transactions have become increasingly abstract and hard to interpret.

6. Conclusion:

Peer to Peer transaction systems are rapidly growing in popularity because to their simplicity, security, and ease of use, and this trend is likely to continue in the future. Based on the current trajectory of enormous growth P2P systems will soon take over the majority of transaction processes and systems. P2P systems will be widely used

in the near future, but they still have a long way to go. It has the potential to be the nursery of the future's post-modern financial system.

7. References

1. [1] Y. Fazea, Z. S. Attarbash, F. Mohammed and I. Abdullahi, "Review on Unstructured Peer-to-Peer Overlay Network Applications," *2021 International Conference of Technology, Science and Administration (ICTSA)*, 2021, pp. 1-7, doi: 10.1109/ICTSA52017.2021.9406524.
2. P. Detzner, J. Gödeke and S. Bondorf, "Low-Cost Search in Tree-Structured P2P Overlays: The Null-Balance Benefit," *2021 IEEE 46th Conference on Local Computer Networks (LCN)*, 2021, pp. 613-620, doi: 10.1109/LCN52139.2021.9525004.
3. <https://www.geeksforgeeks.org/what-is-p2ppeer-to-peer-process/>
4. J. Kim and Y. Dvorkin, "A P2P-Dominant Distribution System Architecture," in *IEEE Transactions on Power Systems*, vol. 35, no. 4, pp. 2716-2725, July 2020, doi: 10.1109/TPWRS.2019.2961330.
5. J. Sen, "Peer-to-peer networks," *2012 3rd National Conference on Emerging Trends and Applications in Computer Science*, 2012, pp. iv-v, doi: 10.1109/NCETACS.2012.6203284.
6. G. Luan, X. Zhu, W. Li and J. Liao, "Transmission capacity anticipation in locality-aware structured P2P networks," *National Doctoral Academic Forum on Information and Communications Technology 2013*, 2013, pp. 1-5, doi: 10.1049/ic.2013.0215.
7. M. Ren *et al.*, "P2P networks monitoring based on the social network analysis and the topological potential," *2014 IEEE Conference on Communications and Network Security*, 2014, pp. 492-493, doi: 10.1109/CNS.2014.6997520.
8. <https://www.emarketer.com/content/the-mobile-series-mobile-peer-to-peer-payments-infographic>