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Essay

Blockchain

Blockchains have a significant role within the cryptocurrency system, which is a form of virtual currency (Hayes, 2022). Cryptocurrency does not contain any physical notes or coins; it is only used online and an example of this is Bitcoin. Blockchains are protected and are managed by a decentralized network that verifies and puts a time stamp on payments. It is a system that is difficult to modify and change information; hackers would most probably find it immensely tough to hack and technically, it should not be an easy system to beat. It could be seen as business improvement software as the technology itself, could improve business processes by lowering cost.

The blockchain platform consists of two cryptographic keys, a peer-to-peer network containing a shared ledger and a computer to store transactions and records of the network. The cryptographic keys are called the public and private key. These keys allow the transactions between parties. Each party has a set of keys, which is used to forge a digital ID. The digital ID is recognised as the digital signature and is meant for transactions. The digital signature then amalgamates with the peer-to-peer network, which is a group of people who advises on the use of the digital signature, to reach a general agreement on transactions and other affairs. Once a deal is agreed, it is then authorised by a mathematical verification, allowing for a complete purchase between the parties (Massessi, 2018).

There are four common types of blockchains that are built in numerous ways. They are public, private, permissioned or consortium. Public blockchain can be viewed globally (Wegrzyn and Wang, 2021). It does not have any restrictions, and no one has control on how it evolves. Bitcoin is an example of this as there are no restrictions on who can use it, and everyone can access all data. Private blockchain is administered by a single entry and works well for private businesses. These businesses can customize their preferences and security options; however, it only needs one individual to manage the private blockchain (Parizo, 2021). Then the permissioned blockchain only allows exclusive access to certain individuals. Some businesses may want to limit certain bodies engaging in specific transactions. Before this can be done, an individual must first be invited and given authorization, however the downfall to this is that data is still accessible to all at anytime and anywhere, prompting concerns about security data. In addition, if you are given permission, there is no need to prove your identity once you have joined the network. Finally, there is the consortium blockchain. This blockchain is not opened to everyone. It consists of both private and public components and is suitable for multiple organisations of smaller groups. Everyone will be given the same level of power to access the network. Setting this up can be difficult as you are connecting different groups together, therefore posing logistical issues (Singh, 2021).

Blockchain can store data of any kind and can record information about cryptocurrency transaction and ownership of Non-Fungible Tokens (Rodeck, 2022). Non-Fungible Tokens (NFT) are cryptographic assets on a Blockchain. They have a set of unique data, such as identification codes and metadata, which distinguishes them from each other. Non-Fungible Tokens cannot be exchanged, but most importantly, they cannot be replicated. Allowing them to be used in real life, being bought, and sold, will in turn

reduce fraud. It can store information just like a database; however, it stores information in blocks that are linked together via cryptography (*Sahrma, 2022*). Cryptography is a method of protecting information and communication using codes, so that only those for whom the information is intended can read and process it (*Richards, 2021*).

Each block within blockchain records transactions, such as medical and voting. When a block can no longer add any more data, it is added to a chain and then a new block is formed. All information on a block can be publicly viewed around the globe. No one has authority and no one controls it.

Blockchain is a source of technology, which offers an alternative to the traditional Bitcoin and is broader than finance. It can also be applied to many and multiple transactions where traceability and visibility is required (*Bradley, 2022*).

Already Blockchain is paving the way for musicians, venues, and record labels within the industry. Musicians can receive their royalties via Blockchain, venues can halt the sale of counterfeit tickets, and the record labels can track streamed music. There are many ways that Blockchain can be used within the industry. Firstly, it can be used to help license music. Sometimes it can be hard to tell who owns the rights to a song and how royalties should be split. In the first instance, blockchain will have digital content stored, by the ledger storing a cryptographic hash, which would consist of all new songs, including musical compositions, lyrics, licensing, and other essential information. Creators will then be able to register ownership of its content, without the need of an agreement of a record label. It also allows the consumer to license the music for various purposes. Ujo Music who are allowing artist to manage his or her own terms is already testing this concept (*Dickson, 2017*).

When an agreement or contract is signed, it is a guaranteed that when you start making money, a cut will always have to be taken. Publishers, record labels, and agencies, will all need a cut and that is not forgetting how long it could take one to be paid. This process alone can take up to six months, before the royalty is passed on. Blockchain can remove intermediaries by establishing a direct connection between artist and consumer, making sure the artist is paid in full.

There are many artists talking about blockchain, with Jay Z being one of them. Jay Z, who is a mega star, said that he would in fact use blockchain. He does consider blockchain to be a complicated platform but believes that he can replace bad contracts with smarter contracts. By stating that any sale an artist makes, they can receive a percentage on the first sale and so on. He is not anti-record label, but pro artist (*Nelson, 2021*).

Imogen Heap is a prime example of how the middleman is removed. Imogen is a singer songwriter who released a track on Ujo Music's site and the users were able to buy her song using a cryptocurrency, however the money went straight to everyone that was involved in the production of the song. She wanted to create Fair trade and sidestep the intermediary (*Kuo, 2016*).

Imogen Heap wanted to bring music and technology together by creating a creative passport (*Ehrlich, 2019*). The creative passport would act like a database, its content would consist of all information pertaining to the artist, and this would be done by using the blockchain technology. Imogen Heap was

quoted saying to Tidal magazine that she 'conceptualized Creative Passport after a long, 23-year career of frustration due to the inefficiencies in the music industry. She wants all the data around songs out in the world for everyone to see any time they want it. Whether that's payment information, data around where the song was written, what gear a musician was using, or which musicians were on the record, who wrote it — all that' (*Ehrlich, 2019*).

As well as cutting out the intermediary within the music industry, this can also be done when selling tickets for an event. There have been many times when an artist announces that he/she will be touring a country and releasing tickets to be sold for a concert, however the internet crashes as there are too many people wanting to purchase tickets and then suddenly there is a realization, that all have been sold out. Swiftly you can buy tickets on the black market, but for a much higher cost. Blockchain can eradicate the need of having a physical ticket and connect the user directly to a ticketing platform. Using Blockchain will allow the organiser to keep an eye on all tickets being sold. Each ticket bought would be linked to the buyer as a transaction, which is then stored on the Blockchain database. If there were any other transactions involving any tickets, it would be seen on the Blockchain Ledger thus eradicating ticket scalping, uncontrolled price hikes and fraudulent activity (*Qureshi, 2021*).

Ed Sheeran will be testing the blockchain technology to fight the scalpers as he himself has been victimised because of this. He has stated that he is frustrated of the scalping of tickets and the complaints from his fans (*King, 2021*). For the tickets to remain secure for Ed Sheeran's concert, the tickets would be purchased nearer to the time with a smart phone only, as you will need to download an app. When purchasing you would key in your telephone number, this would verify the ID once the ticket is available. The ticket would generate a QR code that would change multiple times, stopping it from being copied. Finally, the QR code would have to match to gain admission.

For Blockchain to work, complicated algorithms must run to prove that you have permission to write a chain, which also requires a considerable amount of technology power, and this is not cheap by the slightest means. Implementing blockchain is a mammoth of a job, it involves many investments, and organization and funds are needed for maintaining it. So, if a company is thinking of setting up blockchain, they may need to wait a while, as the project alone, can run into the millions (*Built In, 2022*).

Security needs to remain secure across the network and this is undoubtedly tricky. Unfortunately, Blockchain is not safe from the hackers, as the data shared, only needs to be access by one node. This threatens the whole privacy of the blockchain, therefore a hacker being able to create a fraudulent transaction. Blockchains can grow, meaning they become less stable. If blockchain is introduced to your business, all devices must have the same data and the same transaction. This eventually means multiples of copying data across the entire network, at the same time requiring more storage; the bigger the blockchain the more power is needed for everything to function (*Ali, 2021*). Data on blockchain is also immutable, meaning that the content cannot be changed, and this is the biggest disadvantage of all (*Iredale, 2020*). As well as this, once data has been written and a mistake has been made, it cannot be removed. Regarding privacy, if you use a platform that operates blockchain, you are unable to delete yourself from the system; you create a footprint therefore shredding your privacy into pieces.

There are many technical challenges that face blockchain, such as false codes and loopholes. Users can use these loopholes to their advantage and hack into a network. The blockchain technology can also entice criminals; this is because no one can detect your identity. Therefore, cryptocurrency such as bitcoin is used on the dark web and on the black market (*Iredale, 2021*). The technology itself leads to low scalability. When a mass of users is on the network, transactions will take longer to process. This would lead to transactions costing higher and would limit the amount of people on the network. As it can take days to process a transaction, blockchain technology will become less lucrative. High-energy consumption is also another challenge. This limits the communication between the different blockchains, causing there to be a lot of defects. As there are no regulations to blockchain, no rules are followed. It is therefore not known if this technology is safe as there is no security. For blockchain to remain safe, there needs to be some sort of regulation created by the government (*Brown, 2021*). Another huge challenge that blockchain face is the public perception.

People such as me do not know how to adopt this technology and there is a lack of knowledge, so therefore it needs to attract more users. For the platform to attract more consumers there needs to be more marketing, as little is known about the platform. This would create an appetite for the technology, as the word of mouth can be an immensely powerful tool. Most individuals think blockchain is Bitcoin, individuals need to know the difference between Bitcoin and other types of cryptocurrencies, once this is achieved, the negative stigma attached to the technology will be eliminated, giving it a reason to shine. As the years pass us by, our world is becoming digital by the day, blockchain can revolutionize the world, and that is powerful. There will be no need for contracts, etc., as all content would be stored digitally. Regarding the music industry, artist will have control. Artist will be able to take control of their artistry and finances, thus creating a virtual business, there will not be a need for any record labels. Royalties would be determined in a matter of seconds, unlike now you could be waiting months.

The blockchain technology can potentially bring in millions for the music industry; there would be phenomenal growth and allowing artist to be paid a higher rate every time a song is played. The platform would also give an artist option for selling music, tickets, etc. However, with everything that has been said, there must be a great user experience. A user cannot have a wonderful experience if there are continuous security breaches and malicious attacks. As a country, we are extremely hot on data protection. If there is, the slightest possibility that your data can viewed or even taken, why would anyone want to take that risk.

To conclude, there are many advantages and disadvantages to blockchain, however unfortunately in my opinion, the bad does outweigh the good. Data protection, privacy, and security, I believe are major factors. There have been many attacks on blockchain, but it claims to be secure. Technology in general is developing at a quick pace and if blockchain is going to be successful, it needs to be adapting with the time. Once these major factors are ironed out, blockchain could be the technology that future generations will be using.

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