**Block Chain and Crypto currencies**

**What does it do**: - Blockchain technology was first outlined in 1991 by Stuart Haber and W. Scott Stornetta, two researchers who wanted to implement a system where document timestamps could not be tempered with. But it was not until almost two decades later with the launch of bitcoin in January 2009 that blockchain has its first ever real-world application. The Bitcoin protocol is built on a blockchain. In a research paper introducing the digital currency. Bitcoin’s pseudonymous creator Satoshi Nakmoto referred to it as a new electronic cash system that’s fully peer to peer with no trusted third party.

Cryptocurrency is made of two words crypto and currency, while the meaning of currency is clear that it is money, crypto means encrypted or written codes. So, the meaning of a crypto currency is that a digital asset that has a value like money. Crypto currencies and blockchain work together to create a chain of transections that is decentralized secure and completely digital. The goal of the block chain is to allow digital information to be recorded and distributed but not edited. In this way a block chain is the foundation of immutable ledgers or records of transections that cannot be altered, deleted or destroyed. This is why blockchains are also known as distributed ledger technology (DLT).

The following are the key features of block chains: -

* Blockchain is a type of shared database that differs from a typical database in the way that it stores information. Blockchains store data in the blocks that are then linked together via cryptography.
* As new data comes in, it is entered onto a fresh block, once the block is filled with data, it is chained onto the previous block which makes the data chained together in chronological order.
* Different types of information can be stored on blockchain, but the most common use so far had been a ledger for transections.
* In Bitcoin’s case, blockchain is used in a decentralized way so that no single person or group has control – rather all users collectively retain control.
* Decentralized blockchains are immutable, which means the data entered is irreversible. For Bitcoin this means that transections are permanently recorded and viewable to anyone.

A digital asset blockchain cryptocurrency is designed to work as a medium of exchange. Unlike physical currencies, blockchain cryptocurrency works on digital channel and are often adhered to strong cryptography to secure financial transections that happen online. These cryptographs or encryption layers may also be used to control the creation of additional units and verify the transfer of assets. Blockchain cryptocurrency can have several types. They are Bitcoins, Litecoin, Ripple, Blockchain, Ether etc. With the invent of blockchain currency it became possible to create something that is not possible to be duplicated and can be sent directly from one person to another. These transactions do not require a trusted third party, organization or computer sever in the middle that serves as the source of trust. The supply and value of the cryptocurrencies are controlled by the activities of their users and highly complex protocols which are built into governing codes. In particular the activities of miners – cryptocurrency users who anchor sophisticated computing functions to record transections and receive newly created cryptocurrency units and transection fee are sop critical to the stability and smooth functioning of cryptocurrencies.

The most striking difference between blockchain currency and physical currency is the fact that blockchain cryptocurrency uses a decentralized system of controlling transections as opposed to centralized digital currencies and central banking system. This decentralized feature is based on a distributed ledger technology which is typically a blockchain that serves as public financial transaction database.

**What is Likely Impact**: - Transparency seems to be the most important impact of blockchain cryptocurrencies. The transections have become more accurate and transparent. Among many other impacts the following are a few of them.

* In banking it allows anyone to exchange money faster, efficient and more securely. Banks are already working on adopting blockchain technology to improve their transactions.
* Use of advanced cryptography has made it resistant to unauthorized changes and hacks.
* Blockchain has potential to address security concerns as it decentralizes all of the information and data.
* Blockchains can enable faster, safer and more reliable automated communication.
* With blockchain we can reduce bureaucracy and increase security, efficiency and transparency. Welfare and unemployment benefits could also be more easily verified and distributed.
* Votes could be counted and verified for legitimacy.
* Blockchains can help ensure that money given for charity goes where we need it to go.

The cryptographic attribute of blockchain presents a compelling reason for its use over other technologies but there are some potential pitfalls and unsolved conditions which may inhibit wide use of blockchain. Some of these concerns are as follows.

* As with other record keeping systems once data is logged in one system transferring that data to a new system may be problematic.
* As with adopting any new technology adopters must examine the business, legal and technical aspects of adopting blockchain.
* As with other forms of encryption the creation, storage and loss of private key creates problems that are unsolved.
* Groups of users on the blockchain may combine computing resources and collude in mine block which is allowed and encouraged in some blockchain implementation. However, it does presents a situation where group of users may wield unintended influence over which transactions make into a block and the blocks that are posted.
* Another issue that affects blockchain also like other technologies is level of comfort and knowledge a user must have in order to properly and safely use it.

**How will this affect Us**: -

Society today is filled with uncertainty and trust issues and their reasons are valid too. To be sure that we purchased coffee is really helping a coffee bean farmer in Ethiopia or that my date is actually who they say they are. We will need a system with strong security where records are stored, and facts are verified by many witnesses so that no one could cheat it. For most users the beauty of blockchain will remain will be in the unknown. Just as most of the people are unaware of how 4g technology works or how silicon is processed to produce central processing units, we continue to use our smartphones on a daily basis. Similarly, blockchain will be a perfect backstage to many changing technologies impacting everyone.

Agencies such as Securities and Exchange commission and the Commodities Future trading commission are issuing advisories to industry concerning blockchain technology. In some cases, these actions are to positively declare that the current legal framework governing other transactions also apply to transections on a blockchain.

General Service Administration and the Department of homeland security of US is examining blockchain as a way to achieve efficiencies in the current business of government. In these examinations the federal government is seeking ways to better manage the identities, assets, data and contracts.

The software that powers blockchain technology is open source and free that means developers can use program to build their decentralized applications on the blockchain(dapps). This is a great advantage to the business as they can build on a free existing code.

While the blockchain is still relatively new and many experiments will fail before they succeed the possibilities for innovation are endless. It will affect every sector such as retail, energy management, forecasting, consulting, real estate, insurance and much more. We as IT professionals should be well prepared ourselves for a future where distributed autonomous solutions will have a huge role in business and our personal lives.

References: -

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