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# STUDY ON CRYPTOCURRENCY AND CYBER LAW: A LEGAL PERSPECTIVE

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## ABSTRACT

*Cryptocurrencies are digital currencies that make use of blockchain technology and encryption to make transactions secure and anonymous. Bitcoin and other well-known cryptocurrencies have lot of attention in recent years. This crypto currency also known as digital coin or virtual currency is obtained and sold over the blockchain technology. Since the launch of Bitcoin in 2009, the crypto currency has exploded in popularity, taking the market by storm. Bitcoin, the first and most popular cryptocurrency, in paving the way as a disruptive technology to long-standing and unchanging financial payment systems. While cryptocurrencies are unlikely to replace traditional fiat currency, they have the potential to alter how Internet-connected global markets interact with one another, removing the restrictions that exist around traditional national currencies and exchange rates. This paper is divided into two parts. Firstly, it outlines the term Cryptocurrency and Blockchain, which includes meaning, types, Features etc., and also types of Cryptocurrency available in India. Secondly; this paper outlines cyber crimes, Types of Cyber attack where they take advantage of crypto currencies.*

**Key words:** - Cryptocurrency, Bitcoin, Blockchain, Cyber attack, Digital Coin, Virtual currency

## 1.1 INTRODUCTION

The terms blockchain and cryptocurrency are frequently used interchangeably. There is, however, a significant distinction between the two. Cryptocurrencies are digital currencies that use the blockchain as a ledger to keep track of transactions. Beyond cryptocurrencies, lockchains can be used to store and access medical data, supply chain and logistics data, and financial records, among other things.

The term "cryptocurrency" refers to an internet-based virtual currency in which cryptography is used to verify ownership of a specific unit of value. It's worth varies according on market

conditions. Bitcoins, for illustration, have no physical presence and are controlled by entries in a large database known as the "blockchain," which is kept on a peer-to-peer network. In 2009, Bitcoin became the first decentralised cryptocurrency<sup>1</sup>. Since then, a number of other cryptocurrencies have realised their potential. 'Altcoins' or 'bitcoin alternatives' are terms used to describe them. The use of the blockchain-based transaction database of bitcoin as a DLT (Distributed Ledger Technology) is related to the decentralised control.

Cyber law is a relatively new area of law. Since its inception in the sphere of law, it has been constantly evolving. However, as new technologies and technological paradigms emerge, Cyber law is attempting to adapt to the new technologies and difficulties that are arising in its field of law, with blockchain being one of them that is continually evolving and developing throughout the world<sup>2</sup>. Blockchain is just a growing list of records that are linked using cryptography in today's reality. Every block contains the previous block's hash cryptography, transaction data, and a timestamp. The term "blockchain" refers to a data structure that stores transactional records while also ensuring security, transparency, and decentralisation.

## **1.2 HISTORICAL DEVELOPMENT OF CRYPTOCURRENCY**

### **In 1980, the idea of cryptocurrency**

Encryption was first discussed in 1989, and American cryptographer David Chaum devised digital cash a few years later in 1980, relying on cryptography to protect and verify transactions. However, cryptographic protocols and technology that would allow for the establishment of a genuinely decentralised digital currency did not begin to be developed until the early 1990s.

A document titled Bitcoin: A Peer-to-Peer Electronic Cash Technique, written by Satoshi Nakamoto<sup>3</sup> (a pseudonym), proposed a system for producing a virtual currency that did not require trust in a third party in October 2008. The cryptocurrency revolution was effectively started by Nakamoto's paper.

### **In 2009, the launch of Bitcoins**

Bitcoin is a digital money that may be used to make payments anywhere around the world. The

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<sup>1</sup> *Future of Cryptocurrency and Legal aspects related to it*, <https://blog.ipleaders.in/cryptocurrency-legal-aspects/> (Last accessed on 18<sup>th</sup> April, 2022 @ 8:39 P M)

<sup>2</sup> *Blockchain and Cyber Law*, <https://www.legalserviceindia.com/legal/article-2789-blockchain-and-cyber-law.html> (Last accessed on 18<sup>th</sup> April, 2022 @ 9:00 P M)

<sup>3</sup> *The idea and a brief history of Cryptocurrencies*, <https://guardian.ng/technology/tech/the-idea-and-a-brief-history-of-cryptocurrencies/> (Last accessed on 18<sup>th</sup> April, 2022 @ 10:30 P M)

Bitcoin protocol was designed by Satoshi Nakamoto in 2009, the same year it was released as open-source software. People who need to transmit money across borders without being hampered by banks or governments are increasingly turning to Bitcoin. Despite this, some people are unsure what to do with their Bitcoins due to their sudden growth in value.

On the 12th of January, 2009, Nakamoto and Hal Finney made the first Bitcoin transaction. Someone didn't grasp how important this new technology may be until February of the following year, when one customer paid 10,000 Bitcoins for two pizzas delivered by Papa John's. That business deal is now worth millions of dollars.

## **1.3 CONCEPTUALIZING CONCEPTS**

### **1.3.1 Cryptocurrency**

Cryptocurrency is a digitised asset that is dispersed across several computers in a shared network. Because of its decentralised character, this network is immune to government regulatory oversight. The word "cryptocurrency" comes from the encryption techniques that are employed to keep the network safe.

A cryptocurrency is a digital currency that is represented by an encrypted data string. A peer-to-peer network known as a blockchain monitors and organises it, as well as serving as a secure database of transactions such as buying, selling, and transferring. Cryptocurrencies, unlike actual money, are decentralised, meaning they are not issued by governments or other financial organisations.

#### **Types of Cryptocurrency**

Bitcoin was the first sort of crypto currency, and it remains the most widely used, precious, and popular to this day. Other cryptocurrencies, in addition to Bitcoin, have been developed with differing degrees of functionality and requirements. Some are forked versions of bitcoin, while others were built from the ground up.

Bitcoin was created in 2009 by a person or group known only as "Satoshi Nakamoto." There were about 18.6 million bitcoins in circulation as of March 2021, with a total market valuation of around \$927 billion. Altcoins are the alternative cryptocurrencies that emerged as a result of Bitcoin's success. The following are some well-known altcoins:

- Litecoin

- Peercoin
- Namecoin
- Ethereum
- Cardana

The entire value of all cryptocurrencies in existence is currently over \$1.5 trillion, with Bitcoin accounting for more than 60% of that total.

### Advantages of Cryptocurrency

- Funds will be easily transferred between two parties without the use of a third party such as credit/debit cards or banks.
- Payments are safe and secure, and it provides an unprecedented level of privacy when compared to other online transactions.
- Modern cryptocurrency systems include a user "wallet" or account address that can only be accessed via a public key and a private key. Only the wallet's owner has access to the private key.
- The transfer of funds is completed with a minimum of processing fees.

### Disadvantages of Cryptocurrency

- Because of their almost impenetrable nature, cryptocurrency transactions are ripe for criminal operations such as money laundering, tax evasion, and maybe even terror financing.
- Payments aren't refundable.
- Cryptocurrencies are not widely recognised and have limited value in other countries.
- Some people worry that cryptocurrencies like Bitcoin aren't based on anything tangible. According to certain study, the cost of generating a Bitcoin, which needs a growing quantity of energy, is closely tied to its market price<sup>4</sup>.

### Features of Cryptocurrency

The following are the features:-

- Available in the Digital Environment

Cryptocurrencies can only be used in a digital setting. The money can be viewed on any computer or mobile device that has internet access.

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<sup>4</sup> Cryptocurrency, <https://byjus.com/current-affairs/cryptocurrency/> (Last accessed on 18<sup>th</sup> April, 2022 @ 10:58 P M)

This currency does not have a tangible form like other currencies. The cryptocurrency does not have the same tactile sensation as cash. This currency must be kept in digital wallets, which are software programmes that allow you to transfer and receive bitcoins and other cryptocurrencies.

- Operate using a Decentralized Network

Cryptocurrency servers do not exist. This currency would be available on a wide range of computers and devices. There is no authority in charge of cryptocurrency transactions, such as a government, a person, a bank, or any other body.

- Part of Peer-to-peer Network

The peer-to-peer network would be the foundation for the coin. This network will ensure that transactions are carried out in a secure manner. Fraud and third-party influence will be avoided because to the decentralised network. It speeds up and secures transactions. This network enables users to send bitcoins or other cryptocurrencies straight to another user. Others in the network having the bitcoin address can see the transactions of two people. When a transaction is successfully performed, it is logged in the ledger. This ledger, which is also known as a blockchain, is visible to all users on the network.

- Use Encryption

Encrypted data is stored in the form of code and is protected. Only those with the private key are able to access it. Cryptography is the process of converting any piece of data into a secret code. It is a frequently used way in the cryptography exchange to ensure that transactions are highly safe, anonymous, and not subject to any authority's oversight.

- Permanent Transactions

The ledger would be used to keep track of your transactions. The data on the records cannot be changed. It is irreversible.

- Keep the Transactions Anonymous

Only the address of the cryptocurrency would be published, not the identities of the people involved in the transaction. Their identity would be hidden behind the encryption<sup>5</sup>.

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<sup>5</sup> What are the key features of Cryptocurrency and its working, <https://e-cryptonews.com/what-are-the-key-features-cryptocurrency-and-its-working/> (Last accessed on 18<sup>th</sup> April, 2022@ 11:15 P M)

## **1.4 CONCEPT OF CYBER CRIME IN RELATION WITH CRYPTOCURRENCY**

Crypto transactions are not closely monitored since cryptocurrencies are decentralised, that is, they are not regulated by a government authority such as the Bank of Canada. As a result, alternative currencies open up plenty of new opportunities for cybercriminals.

Hackers can gain access to cryptocurrency exchanges and trading platforms in order to make anonymous transactions or steal money. Cryptocurrencies are often used by criminal organisations to launder money. In 2018, criminals in Europe used cryptocurrencies to launder \$5.5 billion in filthy money. Because crypto transactions do not require real names, thieves can keep it secret while stealing money or committing other crimes. They can also shift these ill-gotten funds across borders because international anti-crime agencies are unlikely to monitor them. Cybercriminals also use anonymity to profit from false transactions on peer-to-peer/sharing economy platforms.

Cryptocurrencies (particularly Bitcoin) are also contributing to the growth in ransomware assaults. Several similar attacks affected various organisations in the United States, the United Kingdom, Australia, and others in 2021. The attackers frequently wanted cryptocurrency ransom payments. Many of the organisations who were affected paid the ransoms in order to regain access to their locked systems and data. Colonial Pipeline, an American oil pipeline operator, is the most recent example, having paid hackers approximately \$5 million in ransom – in difficult-to-trace Bitcoins<sup>6</sup>.

Criminals demand ransom in cryptocurrency because they know they won't be traced - let alone arrested. Hackers can remain anonymous in cyberspace while attacking and collecting ransoms since their victim is thousands of kilometres away.

Other cybercrimes that can be carried out (or completed) anonymously utilising bitcoins include:

- Crypto-jacking is when criminals stealthily mine additional cryptocurrency units using a user's browser.
- Users' information from trading platforms is stolen and sold on the Dark Web for profit through hacked registration forms.
- Malware attacks: Malware steals cryptocurrency mining resources or cryptocurrencies from online wallets.

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<sup>6</sup> *How cryptocurrencies can enable cybercrime*, <https://www.packetlabs.net/posts/cryptocurrencies-enable-cybercrime/> (Last accessed 18<sup>th</sup> April, 2022 @ 11:21 P M)

Crypto phishing assaults are getting more widespread as well. Victims are sent sophisticated emails that guide them to a spoof version of a legitimate cryptocurrency site. They then steal their credentials as well as their money. In July 2020, hackers gained access to 130+ Twitter accounts (including Elon Musk and Bill Gates) and used them to promote a Bitcoin giveaway fraud. Because of the increasingly severe role of cryptocurrencies in cybercrime, various government agencies have called for global crypto regulation and usage restrictions<sup>7</sup>.

## **1.5 CYBER ATTACK WHERE THEY TAKE ADVANTAGE OF CRYPTO CURRENCIES**

There are various sorts of cyberattacks in which criminals use cryptocurrencies to facilitate the process. The following are some of them<sup>8</sup>:

- Ransomware

The most advanced trend in history is ransomware. Its purpose is to extract money from users by encrypting their data. As previously said, ransomware sends a message or email including a link. This message is a threat, requesting that the user deposit money in order to recover access or control. The perpetrator can't be tracked or linked to real-world data, therefore he demands a large sum of money in bitcoin or another altcoin. WannaCry and NotPetya, two ransomware attacks in 2017, brought the market to a halt and damaged countless businesses and organisations.

- Extortion by DDoS

DDoS extortion is also referred to as RDoS, which stands for ransom-driven DDoS. It is the simplest and oldest method of profiting. These types of viruses are well-equipped to accept cryptocurrency payments. And it's extremely tough for investigators to monitor the money flow. As a result, funds are simply transferred from victims to crooks. The thieves use a DDoS attack to take control of the operating site, then demand that the organisations pay them a large bitcoin sum to recover control. In 2014, the extortion technique DD4BC was discovered, which was used to assault a number of websites. Europol apprehended the group later that year. Even after that, attackers launched a series of modest DDoS operations to instil panic in the public about their power and skills.

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<sup>7</sup> *Ibid.*

<sup>8</sup> *How is the Cryptocurrency being used in cybercrime*, <https://www.analyticssteps.com/blogs/how-cryptocurrency-being-used-cybercrime> (Last accessed on 19th April, 2022 @ 11:15 A M)

- **Cryptojacking**

Cryptojacking is a sort of attack in which hackers produce cryptocurrency using the computational power of a compromised device. This is done without the knowledge of the owner. Cryptojacking can damage cellphones, servers, laptops, and Internet of Things (IoT) devices. Device slowing, increased energy usage, overheating batteries, decreased productivity, and device malfunction are all consequences of cryptojacking. Cryptojacking exploded the cryptocurrency market in 2017 and 2018. The reason for this is the rise in cryptocurrency values and the broader resurgence of the crypto market.

- **Cryptomining**

Illegal cryptocurrency mining is also a result of cryptomining. Active Crypto Mining and passive Crypto Mining are the two types of Crypto Mining. Both strategies are used to take use of a victim's processing power without the owners' permission. Criminals used to target Bitcoin, but in 2019 they moved their focus to Monero.

- **Hacking of Cryptocurrencies**

Criminals have hacked cryptocurrency numerous times throughout history. Hackers have always found it to be an interesting target. Hackers are targeting cryptocurrency assets, exchanges, and other services. Many cryptocurrencies were hacked in 2018, with over \$1 billion worth of cryptocurrency stolen from exchanges and networks.

### Protection of Cryptocurrency from cybercrime

There are steps that can be taken to safeguard cryptocurrencies against cybercrime and other criminal activities<sup>9</sup>.

1. Never open unknown or suspicious email attachments or links.
2. Make regular offline backups and check for programme updates on a regular basis.
3. Installing free programmes from unauthorised sources is not a good idea.
4. Create strong passwords for PCs, mobile devices, and Internet of Things (IoT) devices.
5. Make use of antivirus software that has been well tested.
6. Keep an eye on the computer or gadget to see if it lags or stops working.
7. Think about getting a DDoS protection system to protect yourself from both massive and little attacks.

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<sup>9</sup> *Ibid.*

## **1.6 CONCLUSION**

Cryptocurrencies have suddenly emerged as a reality, gaining tremendous popularity in a short amount of time and evolving at a rapid pace. The rapid development of new currencies and technologies continues to present ongoing issues for both responsible technology users and regulators. Due to their anonymity, crypto currencies have been linked to a variety of crimes, including facilitating marketplaces for assassins, business attacks, child exploitation (including pornography), corporate espionage, counterfeit currencies, drugs, fake IDs and passports, high yield investment schemes, sexual exploitation, stolen credit cards and credit card numbers, and weapons. The rapid development of new currencies and technologies continues to present ongoing challenges for both responsible users of technology and regulators. While technology advancements offer tremendous opportunity to improve humanity's health, living conditions, and overall well-being, they also pose significant obstacles to nation states.

In India, cryptocurrency is still in its adolescence. Its existence is estimated to be less than a decade. Nonetheless, it is vulnerable to a variety of dangers. Even history shows how many times cryptocurrencies have been targeted by cybercriminals. As a result, the level of protection and security in this industry should be improved.

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