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Recording of Confession and Safety Through Blockchain Technology in the Legal Industry

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Abstract:- The advancement of technology in this article revolves around the ground – breaking technology known as blockchain technology. Any system's security, dependability and accuracy could be improved with the use of this technology. In the legal sector began expressing interests in using blockchain to guarantee the security and authenticity of stored evidences because of this technology. It guarantees the security of data, trackable records and tamper proof platform. Moreover, in criminal investigation, the recording of confession statements is highly sensitive crime data, which requires a cautious technology to prevent it from getting tampered with or manipulated by any malicious act of another. Thereby, blockchain technology is the only introduced technology in today's era that provides the required services of tamper – proof platform, the security of database and the unalterable and transparent recording of evidence. This paper proposes the benefits of the use of this technology as well as some of challenges and limitations that come with its use. In addition, this article suggests creating clear guidelines and regulations for the efficacious use of blockchain technology in criminal confessions. Moreover, the paper suggests conducting additional research and pilot projects to educate all the parties involved in the criminal justice system about blockchain technology and foster cooperation and information sharing among jurisdiction and agencies. Ultimately, the involvement of blockchain will only strengthen the legal system.

Keywords:- *Blockchain Technology, Criminal Investigation, Secure, Cryptography, Tamper-Proof, Decentralized.*

I. INTRODUCTION

The United Nations bestowed 17 Sustainable Development Goals (SDGs) in 2015 September. In these goals, one of the parameters of sustainable development emphasizes having a technology-based future, for example, AI and blockchain technology in forensic investigation. Today, blockchain technology still in its pupillage but gradually marking its significant achievement by providing a secure, transparent, and efficient platform for managing transactions, data, and resources [1]. This technology presented a historic rise in the market of finance and now it gradually moving towards the Sustainable Development Goals of UN [2].

Blockchain technology is likely known for its secure and tamper-proof data recording methods. The basic concept of this technology to record the data in a decentralized and distributed technique over network of computers. The concept of decentralizing makes it very difficult to manipulate or change by outsiders. It is because there is chain of blocks where data organized in the blockchain system. To ensure the security, each block contains a cryptographic hash of previous block in the chain. This creates an immutable and verifiable record of all transactions or data entries in the blockchain. Blockchain invented for the purpose of recording various sort of data such as financial transactions, medical records, supply chain data, and more. The sole aim of this technology is to provide high tech security for the recorded data, which makes which makes it optimal for devices where privacy and data integrity are vital [3]. The technology is still in its infancy but is evolving quickly [4].

The legal industry also began to feel the effects of this technology, for instance, smart contract [5]. Simultaneously, it is not only efficient for framing smart contract but also efficient for recording data like confession would be benefit. It is because blockchain is a distributed ledger that can effectively and accurately record documents between two parties without involving any outsider [6]. By means of this technology, the recording of data in a trail investigation will be kept secure and safe. Even any sort of tampering with or altering of evidence would be impossible to do because the access of this will be exclusively limited. Also, the blockchain technology provides an additional layer of security to the system in a form of cryptography hash. However, this technology would have better impacts in the legal industry. As a result, certain records or evidence must be kept with strict confidentiality. Therefore, this technology stands best for the work done.

II. ENABLING TECHNOLOGY

In 2015, the European Central Bank issued an appropriate definition, describing blockchain technology as a distributed ledger made with a virtual currency scheme for recording transactional details in the decentralized grouped nodes [7]. The

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term “distributed ledger” places emphasis on the idea that information will be transmitted from block to block as part of the technology. The decentralized connections shall be made between all of those blocks. Tamper-proof systems and privacy are additional advantages of this technology. For instance, if there is a criminal confession stored in this technology, it would be believed that it is stored in a safe system because it has gained the golden truth of the users. It is because this technology is based on the principles of replication and verification. Replication simply held that each and every node in blockchain technology contained the entire information in it and was kept in sync with each other across the network. In much simpler words, it means that every block in the system is linked and carried the same information. The verification of the entire database shall be done through mathematical methods from the field of computer cryptography to ensure the evenness in the distributed network [8]. The mathematical methods are known as consensus. It is a process in which every node of the network should carry the same information or data, and any change in the series of node depends upon the chain of network. Each node verifies by checking the digital signature and hash of that particular node. The distributed network corroborated with each other in exactly the same way as a chain, and without any appropriate authorization, no one could alter the data. If you do otherwise, replication of the database link will fail, and it will be easy to identify the manipulated node. This is how blockchain technology system works. However, in the system, a consensus algorithm, such as Proof of Work (PoW) or Proof of Stake (PoS), is used to obtain consensus. As a result, this technology is completely security-based in terms of recording of information. Elaborating blockchain through graphics mentioned below for better comprehension [Fig. 1].

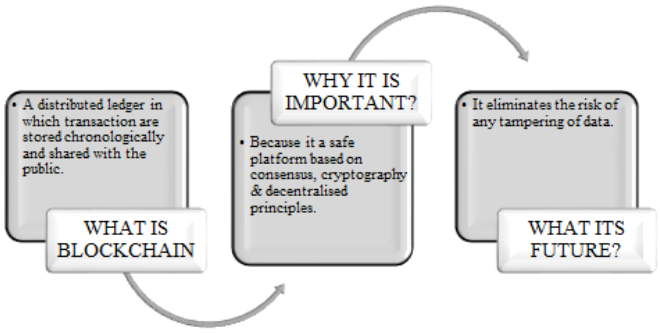

Fig. 1 Describing blockchain and its importance

III. BLOCKCHAIN TECHNOLOGY ADAPTED FOR TRANSFORMAING LEGAL ISSUES

The legal industry is among the most established, traditional and conventional, but it is an also one that is open to change. Since, in the legal sector, there is always a burden on lawyers to analyze the mountain of excessive paperwork. This excessive load cost a plenty of time. Therefore, many countries like Japan, China, South Africa, and others are adapting blockchain technology because of its immutable, transparent, and secure nature. According to PwC, 70% of law firms have already started using smart contracts in 2017. Blockchain has a potential to transform how legal transactions are carried out, from smart contract, land registry, intellectual property rights, chain of custody, litigation and financial transactions. Now also in recording and securing confession. In the following para, there are some effects of blockchain technology in legal sector.

- *Smart Contracts* –

A self-executing digital contract known as a "smart contract" is kept and carried out on a blockchain. It is a computer program that, without the aid of middlemen or other trustworthy third parties, automatically upholds the terms and conditions of a contract between two parties [9].

Moreover, smart contracts created through programming languages so it can not be altered after it has been run. The consensus mechanism, which is the procedure by which all nodes in the network concur on the legitimacy of a transaction, is necessary for the execution of smart contracts on a blockchain. A smart contract that has been developed and deployed on a blockchain joins the immutable ledger of the network, making it auditable and verifiable by anyone on the network.

- *Chain of Custody*

The term “chain of custody” describes the orderly documentation or paper trail that traces the handling, control, transfer, examination, and disposal of tangible or digital evidence. Maintaining the validity an integrity of the evidence and demonstrating its admissibility in court are crucial in legal proceedings. The chain of custody is documented on a blockchain, where it is cryptographically secured and immutable. As a result, the chain of custody can be checked by anybody with access to the blockchain, and the legitimacy and integrity of the evidence are maintained throughout the entire process.

- *Intelllectual Property*

Patents, copyrights, trademarks, and trade secrets are examples of intangible property (IP) that is legally protected. Blockchain technology offers a safe, transparent, and immutable mechanism to record and manage IP assets, which has the potential to revolutionize how IP is maintained and secured.

Digital assets like software, music, and films can be managed and protected with the help of blockchain technology. Owners and creators of digital content can regulate how their work is used, disseminated, and monetized by building a digital rights management system on the blockchain. Blockchain technology, for instance, can be used to develop a safe and open system for monitoring and paying royalties to content creators. Also, Through the creation of a safe and open registry of IP assets, blockchain technology can be utilized to handle patents and trademarks. By providing a mechanism to confirm the ownership and legitimacy of IP assets, this can aid in the prevention of IP infringement.

Therefore, this technology minimizing the danger of IP infringement and offer a more transparent and secure approach to manage and safeguarding IP assets. In doing so, blockchain developers and IP specialists will need to work together for the deployment of blockchain technology in Intellectual rights.

- *Litigation*

Blockchain technology has a capacity to offer various benefits over conventional litigation techniques. For instance, it can assist in avoiding the loss, modification, or destruction of legal records, ensuring their admissibility in court. Also, with the help of blockchain technology, legal record records and documents can be managed transparently, enabling equal access to and review of the same data by all parties to a legal dispute. As a result, the litigation process may become less contentious and less likely to result in disagreements between the parties. Since, this technology create trust bond with the parties.

Overall, the using blockchain technology is beneficial for resolving legal issues in a better way. Fig. 2. Representing how blockchain technology is adapted in different legal situations.

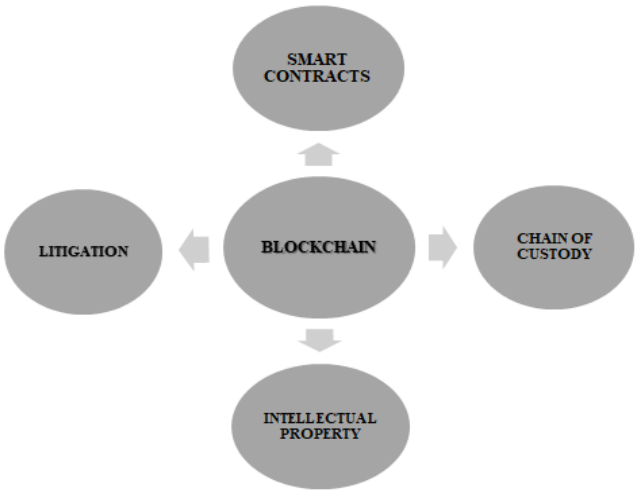

Fig. 2. Illustrating how blockchain adapted in different legal situations.

IV. BLOCKCHAIN TECHNOLOGY IN CRIMINAL CONFESSION DURING INVESTIGATION

The entire trail based on the investigation by the officer. Apparently, in criminal investigation, the most crucial and sensitive segment is securing the evidence, like confession statements, forensic responses, testimonial statements, forensic data, etc. Especially in the matter of recording confession statements. In many cases, the court reiterates that the confession statement is inadmissible as evidence because it is observed that the statements were manipulated. Sometimes, it can be manipulated by investigating officer, police officer or any authorized person of the case. There are several high-profile cases where confessional tempering occurs. For instance, in India, in the Aarushi-Hemraj murder case, it is observed that their confession statement had been tempered by the police officer. Eventually, such malicious acts lead to injustice and unfairness. Many statutory laws even said that any deliberate destruction of evidence, such as any document or electronic record, barred its presentation before the honorable court, shall be subject to imprisonment. Having specific statutory provision and a comprehensive system to combat injustice, ensure equality for all, and deliver justice to those who deserve. People still find ways to get around the system by finding its flaws. Therefore, to improve the entire legal system, AI and blockchain technology are considered a dire need. Through this technology, criminal behavior can be predicted and prevented. It's a new and unproven application of blockchain technology to obtain criminal confessions during investigations. However, blockchain technology has some potential applications in this field. Using blockchain to establish tamper – proof record of a criminal confession is one potential application. Blockchain is also further classified into three categories i.e., public, private and consortium. Recording of confessions and safety can be done through private as well as consortium blockchain. Investigators can make sure that a confession is securely kept for all time and cannot be changed or removed by recording it on a blockchain. Compared to more conventional approaches, such as written or recorded statements, this can offer a more secure and trustworthy record of the confession. Additionally, through Blockchain technology, digital evidence shall be managed and analyzed more effectively [10].

The use of blockchain to confirm a confession's veracity is another potential application. A secure, transparent record of the confession that can be independently validated by numerous parties can be created using blockchain technology. This can lessen the likelihood of false confession and give the court a more trustworthy record of the confession. However, blockchain technology is a key use in the field of investigation to prevent the destruction of evidence. For instance, the investigating officer will record and verify the data using this technology. The complete set of data will be decentralized in that blockchain-based system in such a way that it cannot be changed or tampered with again. Once the evidence has been recorded in the Blockchain based system, the recorded evidence will only be accessible to authorized parties. The option of fabricating evidence is thereby eliminated. The transparency, security, and accountability of criminal investigations shall be guaranteed because the evidence has been captured digitally and kept on the blockchain along with a timestamp and pertinent data [11]. The confession given by the confessor is taken by the investigation officer and it is encrypted by the blockchain using has function which ensures the security and integrity of the data [12]. The confession statement has verified and decrypted by the receiver using the same has function. The data is transferred in the chain of transaction and if by any chance it is tried to manipulate the data in between it will create a new transaction block in between the chain which can easily be identified by the authorized agent and any tempering can be identified easily [14]. Therefore, the technology provides safety to user.

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Below mentioned graphics demonstrate how the functioning of blockchain technology works when used to record confession statements and ensures its safety [Fig. 3]. Below mentioned figure represent Information Officer as I.O.

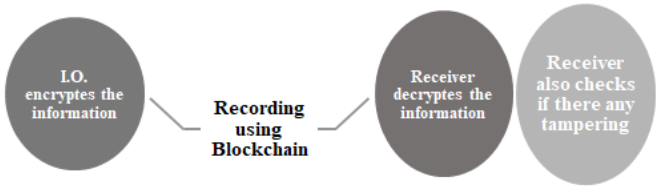

Fig. 3 Demonstrating the functioning of blockchain technology

This technology is still developing in the legal industry. The key element of this technology is privacy [14]. Since there are unfortunately several cases related to rape, domestic violence, mental torture, abuse of minors, and others, handle such victims with care and delicacy, ensuring their justice, dignity, and integrity. In such scenarios, the confession statements are the most fragile and confidential piece of evidence in the case. The confidentiality of the case shall be efficiently maintained by technology, as only authorised persons will have access to the evidence. The potential risk of tempering the evidence decreased to its maximum level [15]. The victims are able to rely on this new technology of the legal system and faithfully address their issue or state any confession. The vital characteristic of the technology is that every single node, also called a block, has its own cryptographic hash, as well as the previous hash of the previous node or block. Thereby, it is linked from one node to another like a chain. Through reverse engineering, the mathematical algorithms of data cannot be changed. Therefore, once the transaction has been recorded, it becomes permanent in the database. Elaborating in simpler way that why blockchain technology is better than the rest of the methods used in legal sector below in [Table 1].

Table 1 Comparing Blockchain Technology and other methods while using recording of confession

PARTICULARS	GENERAL METHODS	BLOCKCHAIN TECHNOLOGY
Recording of information	Threat to information's security	Information is secured under the cryptography
Risk to recorded data	Tampering of data by authorised authority	Immutable of data makes the blockchain a tool of disintermediation.
Breach of law	Possibility of infraction of law	There will be no possibility for breaking the law.
Administration of justice	Altering the administration of justice	The administration of justice will not be compromise.
Privacy policy	Prioritising privacy won't be possible in some delicate situations.	In blockchain technology, a crucial component of employing

V. DISCUSSION AND SUGGESTIONS

Blockchain technology's incorporation in the legal industry would become a very debatable topic. As it stands, various social and legal concerns must be addressed before proceeding with incorporation. Some of the instances include whether the admission of the technology is admissible before an honorable court or whether the technology acquired in criminal investigation trails should be trusted or not. However, the technology is in its infancy but reliable. In order to maximize the potential of the technology, the legal system should be shaped according to regulations and laws with respect to technology [16]. Here are some suggestions for using blockchain technology for recording confessions:

- Acts and Regulations: The legislation should enact such acts and regulations with respect to technology to make them more concrete for criminal investigation. In order to prevent manipulation with evidence and seek justice,
- Consent: While investigating, it is important to obtain the consent of the person who delivers any statement or confession. Through this person, you can get informed about the technology and how it will protect the data. Therefore, it leads to better results.
- Access to only authorized persons: It is very important to note that access to the technology should be given to a very small number of highly reliable individuals. In this step, private blockchain encryption techniques will be used to maintain the confidentiality of the evidence and the confessors.
- Accuracy: It very important that the confession statements or any other evidences shall be recorded accurately because further the possibility of alteration decreases. This might be a disadvantage having a high implementation technology in a system.
- Legal implication: As this is only a technology combined with a system, you can only upgrade it. Hence, the technology should always comply with the established laws. Then only will the purpose of establishing such high technology be achieved.

Further, the use of blockchain technology to track and protect criminal confession is a complex topic with both possible advantages and difficulties. The benefits regarding using this technology are mentioned in the following points:

- Confession recorded on a blockchain are tamper – proof and transparent, allowing investigators to be certain that the confession is safely and permanently saved and cannot be changed or removed.
- Verification of authenticity: Using blockchain technology, a safe, transparent record of the confession may be created, and many parties can independently verify it.
- Increased dependability and trust: The adoption of blockchain technology can offer more accountability and

transparency, which can contribute to the growth of trust in the criminal justice system.

Some of the challenges faced while using the blockchain technology are mentioned below in the following points:

- Legal and ethical issues: Privacy, data protection and potential law enforcement agency abuse of blockchain technology are all significant issues that need to be carefully controlled.
- Access and compatibility: it can be difficult to guarantee that everyone has access to the blockchain and can confirm the veracity of the confession, particularly if several jurisdictions or agencies are involved.
- Technical difficulties: Because blockchain technology is still in its infancy, integrating it into the criminal justice system may present technical difficulties.

The only outright disadvantage of this technology is the permanent recording of data. It means that once it has recorded whether something is right or wrong, it won't change in the future [17]. Thereby, while recording any data over this technology, the person should be very alert or cautious.

VI. CONCLUSION

Criminal investigation could be completely transformed if blockchain technology is used to record confessions from criminals and ensure their security. It is observed from the studies that blockchain technology is a remarkable technology in the present era and also for the future era. The technical, moral and legal issues associated with employing blockchain technology for criminal confession must be carefully handled, though. Important issues that need to be addressed include privacy, data protection, and the possible abuse of blockchain technology by law enforcement organizations. Incorporating this technology in our legal system will totally ward off the disadvantages facing investigations or the recording of evidence. Further, it will provide a secure platform for recording evidence. Unfortunately, with several benefits, this technology has one drawback. It is that once anything is recorded in the system, it can't be rectified again. So, there is no error-rectification option in the system of this technology. Basically, in a legal context, this technology is based on strict liability once there is an error. However, emerging technology in law leads to great challenges like maintaining the integrity and authenticity of recorded evidence. In this article, we've learned that technology has begun to mark its importance, whether it's recording sensitive and delicate crime databases or framing smart contracts. Therefore, to keep up with the trend, we also need to upgrade our system accordingly. and come up with such exceptional solutions to keep up simultaneously with technology.

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