

# Money Laundering: New Technologies And Control Challenges (Cryptocurrencies, Blockchain)

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**Abstract**—Tackling corruption is a global issue and tackling it effectively requires determination, cooperation and specialised technological knowledge. A significant proportion of global GDP is the sum of the money associated with corruption and fraud. The main objective of this article is to assess how new technologies such as cryptocurrencies and blockchain can combat corruption.

The methodology of this article is a literature review. Specifically, scientific articles from databases and international organizations with expertise in new technologies are studied.

This article deals with the new ways of corruption and money laundering. New technologies and the knowledge of them are a very important element in order to deal effectively with corruption. Perpetrators of financial crimes are usually ahead of the auditing authorities in terms of techniques and therefore knowledge of the new technology and the possibilities it offers is essential to effectively combat corruption and fraud globally.

Cryptocurrencies and blockchain can combat corruption primarily due to their key characteristics of transparency, security, and decentralization. A key prerequisite for the transparency of cryptocurrencies is the application of supervision rules by the responsible authorities and the implementation of blockchain technology. In practice this is often not the case and cryptocurrencies are used as a money laundering tool.

**Keywords**— *Money laundering, corruption, new technologies, cryptocurrencies, fraud*

## I. INTRODUCTION

The amount of money associated with bribery and corruption amounts to \$2 trillion or 2% of global GDP (Gehlot and Dhall, 2022). This is a particularly large amount of money, and it has been a long-standing concern for governments and states around the world. Many states and governments say they want to fight corruption and fraud, but often they don't because government officials are involved in it. Some countries are more determined to fight corruption, but often they

cannot because it requires cross-border cooperation. Some banks, established in a tax haven, are reluctant to hand over their clients' assets.

Technology is evolving rapidly and this has had a significant impact on our daily lives. In recent years a new form of electronic rather than physical money has appeared on the money market called cryptocurrencies. The changes brought about by technology can be managed using modern audit tools such as artificial intelligence (Kontogeorgis, 2025a). In addition, the proper use of cryptocurrencies can be achieved with modern tools such as blockchain technology.

This article consists of the research methodology, the literature review and the conclusions. The literature review is divided into two sections. The first section deals with money laundering, new technologies and the challenges faced by the authorities. The second section is concerned with ways of dealing with the methods of money laundering. These methods are related to new technologies, such as cryptocurrencies and blockchain.

## II. METHODOLOGY

The research methodology is a literature review. Specifically, international scientific journals included in databases such as Google Scholar were studied. Reports from international institutions involved in the fight against money laundering using new technologies were also studied.

## III. LITERATURE REVIEW

### A. *Money Laundering, New technologies, control challenges*

Money laundering is to hide the true origin of the money, knowing that it comes from illegal activities and that there will be criminal consequences if it is discovered (United Nations, 2025). The use of cryptocurrencies is associated with money laundering (Europol, 2021). Cryptocurrencies are often used for placement and layering of illegal money. The main problem with the operation of cryptocurrencies is the lack of an institutional framework for their operation. Cryptocurrencies are characterised by a lack of anti-laundering policies. Recently, some efforts have been made to create an institutional framework (Europol, 2021). Cryptocurrencies offer certain features that make them attractive to launderers. Cryptocurrency transactions do not require identification, which is a

key advantage for those seeking to launder money. Those who launder dirty money using cryptocurrencies use various techniques such as specialized servers, the use of virtual private networks VPNS, public internet networks and techniques to leave no electronic trace (Europol, 2021).

Cryptocurrencies are a system of electronic and intangible money discovered in 2009. The first cryptocurrency was bitcoin created by Satoshi Nakamoto. (Albrecht, Duffin, Hawkins and Rocha, 2019). Cryptocurrencies have changed the world of transactions by offering anonymity and security. The main advantages of cryptocurrencies are the following (Fu, 2022):

- Financial transactions without the mediation of banks or credit institutions: We can carry out the transactions ourselves without the intermediation of the banks as intermediaries.
- Cryptocurrency is an international currency: Cryptocurrencies are internationally recognised currencies, making it easy to transact between different countries without the need and cost of currency conversion.
- Cryptocurrencies offer protection against inflation: Cryptocurrencies are protected from the inflationary phenomenon that often affects the economy.
- Cryptocurrency has a high level of security: Cryptocurrencies have encryption and high levels of security that make them impossible to counterfeit.
- The cryptocurrencies have been associated with blockchain technology have a high level of transparency:

Despite the significant benefits that cryptocurrencies bring to the economy as a whole, there are some major drawbacks that are of great concern to governments (Fu, 2022):

- The lack of a supervisory framework: The lack of an institutional framework and, in particular, rules for recording the registration of transactions. States should adopt a legal framework that increases the transparency of transactions.
- Cryptocurrency transactions cannot be cancelled: In the case of transactions, there is no possibility of refund or cancellation of the transaction.
- Potential for money laundering and illegal activities: The anonymity of the transactions offered is exploited by individuals who have income from illegal activities and wish to legalise it.

Blockchain technology has been considered for years as a secure means of conducting transactions (Smith

and Tiwari, 2024). This technology divides the database into blocks. This technology allows individuals to carry out transactions without the intermediation of banks, but these transactions are recorded and encrypted for security reasons. Blockchain technology offers the possibility of creating smart contracts. Smart contracts allow financial transactions to be carried out automatically in the future. These transactions are recorded in blocks (Pappa, Georgitseas, Tantis and Kyriakogkonas, 2024). The key features of blockchain technology are (Fu,2022):

- Decentralization: An important feature is that the data is decentralized, as each node on the blockchain has the same information. The data is generated and stored by all parties.
- Anonymity: The people who transact do not need to know each other's information. Consequently, there is anonymity and personal information is not disclosed.
- Integrity: The log that records transactions cannot be altered or erased. This has the consequence that blockchain technology is distinguished by integrity.
- Immutability: This means that if the data of one node is tampered with, the data of other nodes will not be affected. This has a positive impact on the stability and reliability of the system.
- Openness: Cryptocurrency transaction data, with the exception of personal information, is open and anyone who wants to can dispute it.

Blockchain technology can be useful in various sectors, according to research presented in the table below (Delloite, 2020):

Field	Percentage
Digital currency	33%
Data access/sharing	32%
Data reconciliation	31%
Identity protection	31%
Payments	30%
Track and trace	27%
Asset protection	27%
Asset transfer	25%
Certification	23%
Record reconciliation	23%
Revenue sharing	23%
Tokensized securities	22%
Access to ip	21%
Asset – back tokens	21%
Time stamping	18%
Custody	18%
None	18%

In summary, blockchain technology can be applied to a wide range of activities in the business and transactional world. The main conclusion is that blockchain technology can help cryptocurrencies not be a vehicle for money laundering, but a means of transparency.

*B. Suggestions to increase the effectiveness of the fight against money laundering*

Some measures that can be taken to make cryptocurrencies work better are (World Bank Group, 2018):

- Establishing an institutional framework for cryptocurrencies and smart contracts.
- National tax codes to include the issue of cryptocurrencies. Cryptocurrencies should not only be an asset, but should be envisaged to be a means of payment.
- Consumers should be informed about the volatility of cryptocurrency prices.
- The technology should be made part of legislation and incorporated into regulations and tax laws.
- The use of blockchain technology in government services.

Governments must invest in creating an institutional framework for cryptocurrencies. Many countries have started to rethink their legislation on cryptocurrencies and related technologies. Many countries have started to create platforms that enable blockchain for business-to-business transactions, smart contracts and quality control (Smith and Tiwari, 2024). The existence of national and global legislation governing the operation of cryptocurrencies through the adoption of blockchain technology will prevent the phenomenon of cryptocurrencies being used as a vehicle for laundering dirty money derived from financial crime.

The capabilities of the technologies can offer a lot to the use of cryptocurrencies. Blockchain technology can help not only by creating a cryptocurrency payment platform, but also in holistic services that can significantly change the rate of cryptocurrency use. Blockchain companies have invested significant capital to expand these services (Deloitte, 2021). The characteristics of cryptocurrencies, which are decentralisation, multinational use and a high degree of anonymity, mean that they are often used as a means of laundering. The reduction of laundering through cryptocurrencies can be achieved if global bodies are set up to deal with good practices regarding the use of cryptocurrencies (Teichmann and Falker, 2021).

Finally, some suggestions for reducing the use of cryptocurrencies for money laundering are (Basel Institute of Governance, Europol and Interpol, 2021):

- International cooperation between states: Cooperation will involve formal and informal communication.
- Virtual asset recovery: Speed up the confiscation of virtual assets such as cryptocurrencies. This will serve two important purposes. The first is to return the money to public Treasury if it is illegal proceeds, and the second is to reduce the incidence of laundering through cryptocurrencies.
- Public-private partnership: Bilateral or multilateral agreements to exchange operational and strategic information between public and private organisations.
- Uniformity of institutional framework and effective implementation: Creating and implementing international standards to prevent the use of cryptocurrencies for laundering.
- Investigation of techniques and technology: Keeping abreast of changes in technology and creating new auditing techniques. The private sector can help find new ways to control cryptocurrencies. Blockchain technology has already developed solutions to the problems of personal identification and smart contracts.
- Development of competences: Training staff and attracting high quality employees.
- Multidisciplinary approach: Use of professionals with different disciplines such as forensic accountants, IT specialists, lawyers, accountants. The response requires knowledge of several disciplines.

Finally, Financial Action Task Force has issued relevant standards on risks and good practices to avoid them for virtual assets such as cryptocurrencies. States can incorporate part of the standards into their legislation in order to reduce cases of laundering through cryptocurrencies (FATF, 2019).

#### IV. CONCLUSIONS

In a world dominated by corruption, cryptocurrencies and blockchain are important tools in the fight against corruption (Gehlot and Dhall, 2022). Money launderers use cryptocurrencies because they know they cannot be easily controlled (Murphy, 2024). Blockchain technology offers decentralisation and transparency in financial transactions (Pappa, Georgitseas, Tantis and Kyriakogkonas, 2024).

All transactions on a blockchain are publicly recorded in an immutable ledger, making it easy to trace the flow of money and resources, reducing opportunities for corruption since transactions cannot be hidden or manipulated. Once information is recorded on a blockchain, it cannot be altered or erased, ensuring transparency and preventing forgery or tampering. Blockchain operates on a decentralized network of nodes, meaning no single authority controls the system, which limits the concentration of power and potential for corruption. Additionally, smart contracts automate agreements and execute them based on predefined conditions, eliminating human intervention and reducing the possibility of corrupt practices. Real-time transaction recording also allows for quicker detection of any suspicious activities, making it harder for corruption and mismanagement to thrive. These features collectively make blockchain and cryptocurrencies a powerful tool in promoting a more transparent, secure, and trustworthy system. The main difficulties cryptocurrencies face in establishing themselves legally as a dominant currency are the high volatility of their price and the high organisational costs of decentralisation (World Bank Group, 2018).

Cryptocurrencies have in fact until now been a tool that can be used for money laundering as no effective control procedures have been put in place (Teichmann and Falker, 2021). An appropriate institutional framework for the operation of cryptocurrencies and smart contracts has not been developed (World Bank Group, 2018). Cryptocurrencies like Bitcoin have been banned in countries like Bolivia, Saudi Arabia, and Vietnam. (Teichmann and Falker, 2021). The use of cryptocurrencies in European countries leads to money laundering and tax evasion. This is due to the anonymity of transactions, decentralisation and the abject failure of European countries to introduce effective legislation on cryptocurrencies. The Fifth European Community Directive contains certain provisions for the operation of cryptocurrencies (Wronka, 2022).

The anonymity of cryptocurrencies is a lie. It is possible to reveal the identity of the person making the transactions, through the logging done by blockchain technology. In addition, the decentralisation of information allows auditing authorities to investigate the accuracy of transactions (Europol, 2021). The key to the success of all this is the implementation of blockchain technology and an appropriate institutional framework for the control and operation of cryptocurrencies.

Finally, the implementation of more general preventive measures in the corporate sector can prevent the emergence of corruption and money laundering. Internal audit can greatly assist management in identifying cases of corruption (Kontogeorgis, 2018).

In addition, the use of whistleblowers by companies can significantly reduce the incidence of fraud (Kontogeorgis, 2025b).

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