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Thesis about legal framework of cryptocurrencies

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I. INTRODUCTION

Crypto assets are a current topic that is given a lot to talk about and that involves several branches. Furthermore, the most important area to focus on is the legal fields. However, for a detailed analysis of the legal field, some economic aspects will also have to be covered.

As it is a current issue, many legal aspects in the Private International Law, such as where to declare a sale or purchase through these cutting-edge technologies, are still undefined in many countries that are considered developed, who usually leave everything in the hands of the state, assuming that they will make the best decision for most citizens.

As far as purely economic matters are concerned, Bitcoin is the best-known cryptocurrency of all and the one that is the best postulated to replace fiat money issued by central governments constantly and excessively. Bitcoin offers society a revolutionary, decentralized, deflationary, fast, and secure means of payment, thus improving many of the problems of current currencies. Even so, this revolutionary cryptocurrency will face numerous problems that will make its adoption as legal tender on a large scale and in the short term a difficult path.

Historically, Bitcoin is something relatively recent and new, as it was created by Satoshi Nakamoto in 2008[1], with the publication of his famous whitepaper on an internet forum. However, cryptography, which comes from the word "Krypto" (hidden) and "graphos" (to write) is much older, as we could see already at the time of the second world war with the famous encrypted messages of the Nazis and the subsequent solution to them by Alan Turing[2].

At the beginning, not many people knew about this technology. In fact, there were a few who supported it, known as cyberpunks[3]. It should also be noted that many of today's new millionaires through speculation, which will be left out of this paper, did not know the technology behind it or the potential it had, they simply bought it because it was something new and mentioned in the deepest forums on the internet.

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[1] Academy, B. (2023). Whitepaper de Bitcoin: traducido y explicado en español. Bit2Me Academy. https://academy.bit2me.com/whitepaper-bitcoin-en-espanol/

[2] Copeland, B. J. (2023). Alan Turing | Biography, Facts, Computer, Machine, Education, & Death. Encyclopedia Britannica. https://www.britannica.com/biography/Alan-Turing

[3] Dale, B. (2021). Cypherpunk, Crypto Anarchy and How Bitcoin Lost the Narrative. https://www.coindesk.com/tech/2020/11/24/cypherpunk-crypto-anarchy-and-how-bitcoin-lost-the-narrative/

Nowadays, the most developed countries and the developing ones too, are working on their economic area via Central Bank Digital Currencies, also known as “CBDC”. These currencies are also considered as crypto assets and they are meant to be the next step in the world economy, replacing the fiat currency for a securer method of payment in words of the central banks. Anyway, there will be a deep analysis later about this new concept.

The main objective of this work is to study, analyse and publicize the crypto assets sector and compare what would be the decentralized system proposed by Bitcoin versus the centralized system proposed by some of the major central banks. In addition, the current situation of El Salvador and its president Nayib Bukele regarding the early adoption of Bitcoin will be deeply analysed.

This thesis will be structured as follows: It will start with an introduction, following the first chapter which will be the blockchain technology on which the world of crypto assets is based; This concept will be explained in a brieve and simple way, considering that it’s not the main objective of the analysis carried. Then, two kinds of crypto assets will be explained in depth, Bitcoin and CBDC’s. The starting point will be just the concept and it will continue with the functionality and the legal field in which they should be considered. Finally, before the conclusions and bibliography, the BTC as such will be analysed and a complete comparison will be made with what the major central banks are proposing with their crypto assets.

This work will be a study based on social and legal sciences, contrasting relevant doctrine and case law on this issue.

II. BLOCKCHAIN TECHNOLOGY

2.1 Blockchain as a concept

Blockchain[4] technology is one of the most praised and admired technologies by many experts in the technology or business sector because according to them it has great potential to replace the current systems which are based in the centralization and the bureaucracy.

Technically, what is known as Blockchain technology is nothing more than a system of information, which works in blocks connected to its predecessor through an identification code called a "hash". This code is the answer to a highly difficult mathematical operation

[4] A distributed database that maintains a continuously growing list of ordered records, called blocks.

that must be deciphered by one of the nodes that make up the storage system and verified. The rest of the nodes must verify the operation by the absolute majority to close the block and move on to the next one, making the technology secure and *decentralised*[5] . These nodes are spread all over the world, and anyone with an internet connection and a computer can set up their node.

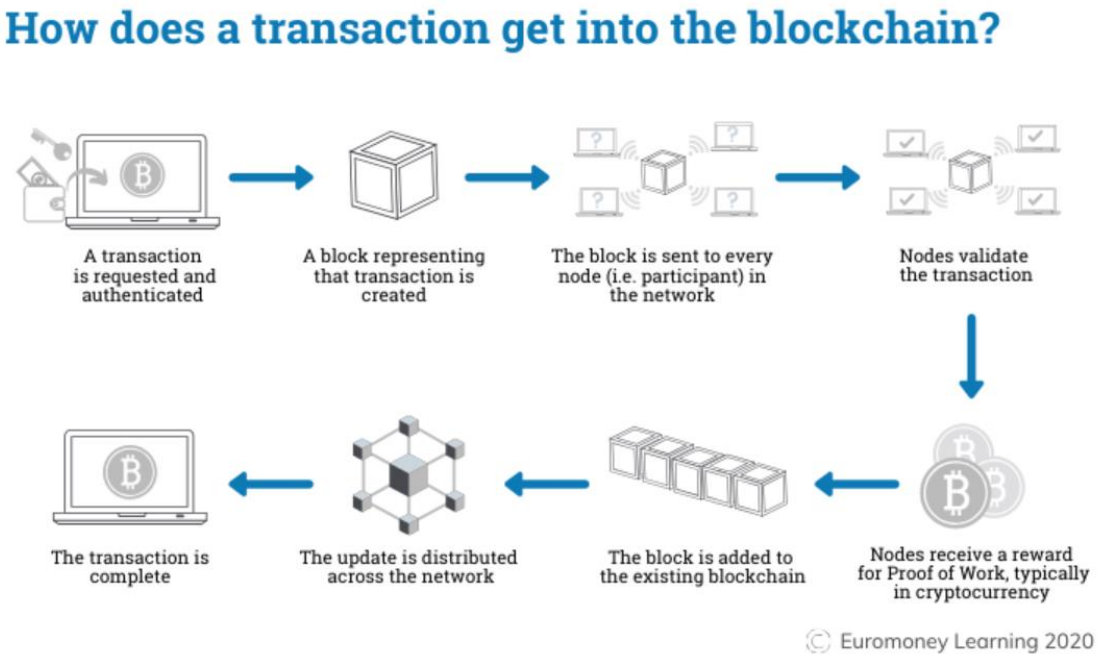

Image 1: Functioning of Blockchain technology[6]

Moreover, a fraudulent alteration in what would be the identification code, or in other words, a wrong answer to the mathematical operation, would be easily detectable by the rest of the nodes.

Speaking in a more technical and detailed way, to add new transactions to the blockchain, they must first be validated by the network of nodes. This process, known as consensus, ensures that all transactions are legitimate and that there are no double-spends or other fraudulent activities. There are several different consensus mechanisms used in

[5] Move the control of an organization or government from a single place to several smaller ones.

[6] Blockchain Explained: How does a transaction get into the blockchain? | Euromoney Learning. (s. f.). https://www.euromoney.com/learning/blockchain-explained/how-transactions-get-into-the-blockchain

blockchain technology, including proof-of-work, proof-of-stake, and delegated proof-of-stake.

Once a block of transactions has been validated by the network, it is added to the blockchain and becomes a permanent part of the record. Because the blockchain is decentralized, there is no central authority that can modify or delete transactions. This makes it ideal for use in applications where security and *immutability*[7] are critical, such as financial transactions or supply chain management.

Beyond its use in cryptocurrencies, blockchain technology has many other potential applications. For example, it could be used to create secure and transparent voting systems[8], to track the ownership and transfer of assets such as real estate or intellectual property, or to create *decentralized applications* [9]*(dApps*) that are not controlled by any single entity.

2.2 Legal framework covering Blockchain

Being a cross-border technology, the blockchain generates a series of legal uncertainties of a multidimensional nature that must necessarily be addressed from the perspective of *private international law* [10](PIL), as it has no direct rules or rules by analogy that can be applied.

Authors such as *Guillaume*[11] have ruled out this possibility, pointing out that in many cases not even adequate rules have yet been adopted for relationships formalised through the Internet, let alone through blockchain technology. She points out that some international institutions have tried to address this issue - cross-border transactions concluded over the internet - through instruments such as the United Nations Convention on the Use of Electronic Communications in International Contracts (2005).

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[7] Not capable of or susceptible to change.

[8] Anitha, V., Marquez Caro, O. J., Sudharsan, R., Yoganandan, S., & Vimal, M. (2023). Transparent voting system using blockchain. Measurement: Sensors, 25, 100620. https://doi.org/10.1016/j.measen.2022.100620

[9] Digital applications or programs that exist and run on a blockchain or peer-to-peer (P2P) network of computers instead of a single computer.

10 Assist courts and disputing parties to deal with cases. involving foreign elements.

[11] Guillaume, F., (2019) "Aspects of Private International Law related to Blockchain Transactions", en Kraus, D., Obrist, T. y Hari, O. (eds.), Blockchains, Smart Contracts, Decentralised Autonomous Organisations and the Law, 1ª ed, Edward Elgar Publishing, Cheltenham:UK, Northampton:USA, 2019, pp. 49-82, p. ç

However, the controversial nature of the subject matter and the existence of conflicts of interest between the different States leads to a considerably restricted scope of application, as well as a very limited number of ratifications, which ultimately limits the effectiveness of these instruments. Furthermore, its application by analogy to relationships concluded employing blockchain is unsatisfactory and insufficient to determine all the issues and particularities arising from this new technology.

It is in this scenario, therefore, where PIL law will become more relevant, as it will continue to be necessary - for the time being - to resort to these instruments to designate a competent authority and an applicable law capable of resolving the problems posed by blockchain technology.

2.3 Blockchain applications and specific legal framework for each one

Smart contracts are one of the applications of this technology. These are computer code that automatically executes, without the need for human intervention, those operations previously programmed by the parties. In other words, they are still traditional contracts that omit the most bureaucratic and traditional part, giving them a technological identity that obliges the parties to fulfil all the obligations of the contract without any room for fraud or positions of power in contracts, such as those that a government could exercise concerning a legal entity.

A clear example of the use of such contracts would be the agreement of a transfer of goods between two people with the corresponding payment in bitcoins, for example. This payment would be executed upon completion of the contract by both parties, this being previously programmed into the contract.

Smart contracting raises several questions. Most of them relate to the compliance of smart contracts with the requirements to produce legal effects that allow the transaction to be classified as a smart legal contract. In many cases, there will be no problem in granting legal validity to the corresponding transaction, given the freedom to conclude the contract by electronic means granted to the parties under the general principles of contract law (Regulation Rome I)[12]. However, we may indeed find situations (e.g. in those cases where the contract is expressed solely utilizing computer code) in which such an answer is not so obvious.

The biggest obstacle that could arise in this case would be the anonymity or lack of knowledge of the identity of the parties, which can sometimes be facilitated by such

[12] Regulation (EC) No 593/2008 of the European Parliament and of the Council of 17 June 2008 on the law applicable to contractual obligations (Rome I)

technology, as the legal framework governing contracts, today does not understand "anonymous" contracts. Therefore, changes should be made to the legal framework to allow for this, so that the real identity of the agents involved becomes secondary and the important thing is the contract itself and not the agents involved.

Furthermore, talking about privacy and anonymity, which are the two aspects to consider when analysing blockchain technology legal aspects, anonymity refers to the ability of users to conduct transactions on the blockchain without revealing their true identity. This is possible because blockchain transactions are pseudonymous, meaning that they are recorded using a unique address or public key rather than a real name or other personal information. In this way, blockchain transactions can be more anonymous than traditional financial transactions, which often require the disclosure of personal information such as a name or address.

However, it is important to note that while blockchain transactions are pseudonymous, they are not completely anonymous. It is possible to trace the flow of funds on the blockchain by analysing transaction records and blockchain data. In addition, some blockchain networks require users to undergo a Know Your Customer (KYC) process to access certain features or services, which can further erode anonymity.

Privacy, on the other hand, refers to the ability of users to keep their transactions and personal information confidential. This is achieved using encryption and other security measures that ensure that only authorized parties can access transaction data. Some blockchain networks, such as “Monero” and “Zcash”, are specifically designed to provide enhanced privacy and anonymity by using advanced cryptographic techniques.

Another obstacle occurs in cases where the service is intangible or immaterial, given the complexity of determining the place of provision. However, these issues are not exclusive to blockchain technology but reproduce the same problems raised by traditional electronic contracts. Here, the lack of specific rules for locating the place of performance of services provided online stands out.

However, authors such as *De Miguel Asensio*[13] prefers to consider the place of establishment of the service provider, in response to the principles of foreseeability and proximity. In other words, the location that has to be considered as the location of the transaction, is the one of the service providers, meaning that transaction is given in the

[13] De Miguel Asensio, P., Derecho Privado de Internet, 6ª ed, Civitas, Madrid, 2022, pp. 1462-1466.

point of origin and not in the destiny point. Jurisprudence also seems to be along the same lines, as recent cases that were judged in terms of electronic transactions were concluded by that statement.

By way of conclusion, it can be noted that the current rules on private international law are sufficiently broad and flexible to accommodate smart contracting in a relatively satisfactory manner. However, some obstacles such as the possible anonymity of the contracting parties or the difficulty of determining the place of performance of the contract could undermine the effectiveness of these rules in specific cases.

Tokens or crypto assets are other applications that have blockchain technology implemented in themselves. They are digital representations of an asset, whether physical, financial, or intangible. Once such an element goes through the so-called "tokenisation" process, it can be traded or exchanged via the blockchain using smart contracts.

The fact that tokens[14] can represent a wide variety of items of different natures raises important questions about their legal qualification. At present, there is no standard global classification. However, there does seem to be some consensus on the existence of three broad categories defined based on the purpose of the token, namely: i) payment tokens, i.e. cryptocurrencies and other virtual currencies such as bitcoin; ii) investment tokens, intended for raising capital and/or granting property rights or dividends; iii) so-called utility tokens, which guarantee access to a specific product or service on the corresponding blockchain platform.

At the same time, we must also differentiate between tokens of a fungible nature and those of a non-fungible nature (the so-called non-fungible tokens or "NFTs"). The difference lies in the possibility of replacing the corresponding token with an identical token, both in terms of quality and quantity. In other words, a non-fungible token has a unique identity, which is different to any other non-fungible token. This kind of tokens are being used by famous artists such as *Banksy*[15] or *Kanye West*[16] to sell their digital art pieces as something exclusive and unique which cannot be replicated.

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[14] Rodríguez, R. R. (2022). Blockchain y Derecho Internacional privado. Dialnet. *https://dialnet.unirioja.es/servlet/articulo?codigo=8536004*

[15] Banksy and NFTs: From the Street to the Blockchain, 2022 | Article. (s. f.). MyArtBroker. https://www.myartbroker.com/investing/articles/from-the-street-to-the-blockchain-banksy-and-nfts

[16] Pérez, H. (2022, June 2). Rapero Kanye West registró su marca 'YEEZUS' para un posible debut en NFT y metaverso. DiarioBitcoin. https://www.diariobitcoin.com/nft/kanye-west-registra-marca-yeezus-para-posible-debut-nft-y-metaverso/

Regarding legal framework, the number of legal instruments dealing with this issue is currently considerably reduced. Most states have opted to temporarily allow their use outside the law, without yet taking a position on the legal treatment of the different types of tokens. However, concrete, and specific regulation of these assets is necessary to guarantee the rights of all those involved and to incentivise their use. This would reduce the existing high degree of legal uncertainty, which is accentuated by the global and decentralised nature of the blockchain.

As in the case of smart contracts, the legal framework of tokens should be also the international private law since tokens are also based on blockchain and decentralization by nature. In addition, it is impossible to refer to crypto assets in a generalised manner, and a case-by-case analysis is necessary, depending on the purpose or function of the corresponding token.

As regards investment crypto assets, the authorities' position on the possible legal classification of these assets is dispersed and gives rise to doubts. To shed some light on this issue, the current position of the doctrine is that it considers these tokens to be securities. After all, from a teleological point of view, they are simply a mechanism by which companies raise funds through the issuance of (digital) assets with a certain value. Virtual currencies are probably the crypto asset that generates the least qualification problems, given their ability to be subsumed under current legal instruments. The CJEU has had the opportunity to rule on cryptocurrencies and bitcoin, in judgments such as that the "*Hedqvist* " case, C 264/14[17].

Furthermore, Hedqvist v Commission is a landmark case that dealt with the interpretation of the VAT (Value Added Tax) provisions of the EU law regarding cross-border B2C (business-to-consumer) sales of services. The case arose from a dispute between a Swedish national, Mr. Hedqvist, who provided online marketing services to customers in other EU countries and the Commission of the European Union. The main issue at stake was whether EU law precludes national authorities from requiring electronic marketplace platforms, such as Mr. Hedqvist's website, to verify the VAT identification numbers of their customers for the purpose of collecting VAT on cross-border B2C sales.

The European Court of Justice (ECJ) ruled that EU law does not prevent such a requirement, as long as it does not go beyond what is necessary to ensure the correct

[17] STJUE 22 octubre 2015, C 264/14, "*Hedqvist"*, ECLI:EU:C:2015:718.

collection of VAT and does not create disproportionate obstacles to the freedom to provide services. The ECJ held that the requirement for electronic marketplace platforms to verify VAT identification numbers contributes to the fight against VAT fraud and helps to ensure the correct collection of VAT on cross-border B2C sales.

The Hedqvist case is significant as it provides clarity on the interpretation of EU law in cross-border B2C sales of services and the obligation of electronic marketplace platforms to collect VAT in such transactions. It also highlights the importance of ensuring the correct collection of VAT in cross-border e-commerce transactions and the role of electronic marketplace platforms in this regard.

In this case, the Court also established that "the bidirectional flow virtual currency "bitcoin" (...) cannot be qualified as "tangible property", since (...) it has no purpose other than that of being a means of payment" and characterised this currency as a non-traditional currency, "other than currencies which are legal means of payment" but which can be used by the parties provided that they have accepted its use as an alternative to legal means.

III. Cryptocurrencies

3.1 Cryptocurrencies as a concept

A cryptocurrency is an *exchangeable*[18] digital asset that works with blockchain technology. In other words, they are exchangeable digital "currencies" whose value is highly variable depending on their supply, demand, characteristics, and the type of project behind them. They can be worth from pennies to thousands of euros. In addition, they can be decentralised, meaning that there is no specific entity in control of their supply or policies, as it is the case of Bitcoin, and they can also be centralized, meaning that there is a legal authority in control such as the central bank with the new digital CBDCs.

Cryptocurrencies are bought, sold, and exchanged with each other through so-called cryptocurrency exchanges in most of the cases. These companies, among many other things, accumulate cryptocurrencies on their *balance sheets* [19]and trade them. In return, they charge commissions and give their users the possibility to accumulate, trade and store cryptocurrencies. The best-known exchanges are Coinbase, Binance, Kucoin,

[18] Involving the act of giving something to someone and them giving you something else.
[19] A financial statement that contains details of a company's assets or liabilities at a specific point in time.

Kraken, and Bit2me... Nevertheless, there also exist some decentralised exchanges or dex that offer cryptocurrency services in a decentralised way. A DEX (Decentralized Exchange) is a type of cryptocurrency exchange that operates in a decentralized manner, meaning that it does not rely on a central authority or middleman to facilitate transactions between buyers and sellers.

In a traditional centralized exchange, users deposit their funds with the exchange, which then acts as a custodian of their assets and matches buyers and sellers to execute trades. This model has been criticized for a lack of transparency, security risks, and the potential for the exchange to act in its own interest rather than in the interest of its users.

In contrast, a decentralized exchange operates on a blockchain network and enables users to trade cryptocurrencies directly with one another without the need for a central authority. Instead of depositing funds with the exchange, users retain control of their assets in their own wallets and use a smart contract system to facilitate trades. This makes decentralized exchanges more transparent, secure, and resistant to manipulation or fraud.

Decentralized exchanges can take various forms, including order book-based models or automated market maker (AMM) models, which use algorithms to determine the price of assets and provide liquidity to the market.

Cryptocurrencies can be stored in many ways. They can be saved in the exchanges themselves, in digital or physical, personal wallets. By holding them in a wallet, you ensure that they are in your possession without the need for any intermediary to store them. However, there are semi-custodial wallets such as “Bluewallet”.

Semi-custodial wallets are a type of cryptocurrency wallet that combines the security features of both custodial and non-custodial wallets.

In a custodial wallet, the private keys to access the funds are held by a third-party service provider, such as an exchange or wallet provider. This means that the user does not have complete control over their funds, as the service provider could manage and access the funds on their behalf.

On the other hand, in a non-custodial wallet, the user has complete control over their funds and the private keys are stored on their device. This means that the user is solely responsible for managing their own funds and keeping their private keys secure.

Semi-custodial wallets try to strike a balance between these two approaches by offering a hybrid solution. They allow users to control their private keys, which means that they have full control over their funds, but they also offer additional security features that are managed by a third-party service provider.

For example, a semi-custodial wallet may provide users with access to a secure, hardware-based key management system, which is managed by a third-party service provider. This key management system adds an extra layer of security to the user's private keys, helping to prevent them from being stolen or compromised.

3.2 Types of cryptocurrencies and functionality

Today, there are more than ten thousand cryptocurrencies , with different functionalities and characteristics. Many of them are in competition with each other and others, such as Bitcoin, are unique. Going back to the classification, they are generally divided into four types:

- Coins, which are cryptocurrencies that have their own blockchains, such as Ether, Cardano, Solana, Bitcoin, Polkadot, and Rose...
- Altcoins which are all coins that are not Bitcoin.
- Tokens, which are the cryptocurrencies that use the blockchain of the coins to function and carry out their projects. In other words, metaphorically, if the blockchain is the roads, the tokens are the cars that drive on them. For example, Mana, Sandbox, stablecoins, Chainlink, fan tokens...
- Stablecoins, which are cryptocurrencies that fluctuate at the price of a fiat currency, for example, Usdc[20] and Busd, which have the real-time value of the US dollar.

In terms of their functionality, it could be said that they are very diverse. Each cryptocurrency has a project behind it and serves a purpose. There are cryptocurrencies that are simply the currency of a Blockchain and serve to carry out transactions on that Blockchain or allow payments to be made in smart contracts. There also are cryptocurrencies that are useful for decentralised finance.

20 Sun, Z. (2023). Crypto whales suffer huge losses due to USDC depeg, SVB collapse. Cointelegraph. https://cointelegraph.com/news/crypto-whales-suffer-huge-losses-due-to-usdc-depeg-svb-collapse

In short, it could be stated that the world of cryptocurrencies covers many sectors and are useful for many things. They are not simply speculative currencies, they are the monetary representation of a technological project, foundation, or company behind them.

3.3 Regulation of cryptocurrencies

At the time of writing, the legal status of crypto-assets varied among countries, absent a common taxonomy of crypto-assets, and a shared understanding of how crypto-assets should be treated from a regulatory standpoint. Given the global dimension of the crypto-assets phenomenon, uncoordinated and/or inconsistent regulatory approaches undertaken at the country level may prove ineffective and create incentives for regulatory arbitrage.

Whilst this need not pose an immediate threat to the financial system, it calls for vigilance at the level of the EU, to prevent a proliferation of national initiatives from triggering regulatory arbitrage and, ultimately, hampering the resilience of the financial system to crypto-asset market- based shocks.

Under EU law as it stands, crypto-assets as defined in this report do not appear to fit under any of the subject matter-relevant EU legal acts. As a consequence, crypto assets as defined in this report and related activities are unregulated, with the exception of anti-money laundering following the adoption of the fifth Anti Money Laundering Directive

Directive 2015/849, of 20 May 2015, on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, which envisages extending the scope of The Digital Services Act package, 17 February 2023[21] to providers engaged in exchange services between virtual currencies and fiat currencies and custodian wallet providers. For completeness, the Directive 98/26/EC of the of 19 May 1998, on settlement finality in payment and securities settlement systems– predating the advent of crypto-assets – is not applicable to crypto-asset networks or intermediaries.

Given the current state of law, there is limited scope for public authorities to intervene; moreover, regulatory intervention would be further complicated by the lack of governance and distributed architecture of crypto assets. Finally, the cross-border dimension of this phenomenon challenges the effectiveness of (uncoordinated) interventions at the domestic level.

[21] The Digital Services Act package. (2023). Shaping Europe's digital future. *https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package*

Still, there could be avenues for the regulation, at EU level, of crypto-assets business at the intersection with the regulated financial system, i.e. aimed at crypto-asset "gatekeeping" services, namely crypto-assets custody and trading/exchange services. This would allow risks to be addressed at the point where they enter and propagate into the regulated financial sector, and to protect users of these services. Moreover, regulating the gatekeepers would facilitate monitoring of crypto assets via transparency and reporting obligations that would otherwise not be possible to impose/enforce on unregulated activities. Importantly, EU regulation in this area would prevent diverging approaches at the Member State level from proliferating thus leading to *fragmentation*[22].

In a context where a large part of crypto-asset-related activity is carried out by centralised service providers, this set-up is no different from the traditional financial intermediation business, hence a similar framework could be used to regulate and authorise the activities of (centralised) crypto-asset gatekeepers. While investors in crypto assets can hold and trade units with their peers by using any personal device with an internet connection, they are more likely to rely on third party service providers or gatekeepers (e.g. custodian wallet providers, trading platforms and exchanges). Gatekeepers participate in the networks where crypto-asset transactions are instructed and validated to hold, buy and sell crypto-assets on behalf of their clients.

However, the above regulatory approach is not suited to decentralised gatekeeping activities that do not foresee the involvement of an identifiable intermediary; in this case, a principles-based approach, complemented by a formal mechanism to validate the observance of such principles, could be considered. A way to (indirectly) regulate crypto-asset gatekeeping services and, at the same time, safeguard the regulated intermediaries/infrastructures with which those decentralised networks may interact, would be to (at least) subject decentralised networks (and the cryptographic algorithms and protocols they are built upon) to a minimum set of principles[23], such as: (i) technological integrity, meaning, inter alia, no back doors/loopholes or hidden functionalities, no white listing of malware, no fraudulent collusion, responsible cryptographic key management, and the pursuit of the state of the art; (ii) algorithms/protocol service performance and transparency so as to ensure the correct

[22] Breaking into pieces or being divided into parts.
[23] The Digital Services Act package. (2023). Shaping Europe's digital future. https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package

performance of the service and facilitate any necessary audit; (iii) stress-tested operational security and cyber-resilience; (iv) regulatory compliance intended as audibility by users and supervisors in line with the regulatory obligations/requirements that may be triggered by participation in or use of the network.

It cannot be excluded that regulation of crypto-asset gatekeepers could have an unintended impact on the market. First, because centralised gatekeeping services will be held to a greater level of scrutiny than decentralised services (which cannot be as effectively supervised), there is a risk of an uneven playing field and a shift from centralised to decentralised services. Furthermore, regulating, and supervising gatekeepers entails significant resources on the side of public authorities, particularly with regard to the mechanisms to ensure compliance. Finally, regulation could be perceived as (unintentionally) legitimising crypto-assets business.

3.4 General facts and statistics

The cryptocurrency market is very volatile, risky, and poorly regulated, so it is advisable to get informed and educated before investing in it. Learning about different concepts, such as the blockchain, the stock exchange, theoretical and technical aspects of cryptocurrencies and others, can be very useful when investing in this sector. In terms of market capitalisation, i.e., the total amount of money that moves in this market fluctuates between 1.2 and 2.4 trillion dollars. This market cap is quite variable, given the high volatility of cryptocurrencies. Bitcoin's dominance is around 40-50% of the market.

The adoption of cryptocurrencies shows, a priori, an ascending channel and more and more users are holding cryptocurrencies. It is estimated that in 2022 there are already more than 200 million users in the world who have cryptocurrencies and in Spain around 4.5 million people[24]. The world of cryptocurrencies can be described as an emerging market which is yet to explode as the internet did and according to others, it is a giant speculative bubble. There is much debate on this issue, given the lack of regulation and support that cryptocurrencies currently have by institutions and states. We must remember that cryptocurrencies cut out the functions of many intermediaries and the big banks and banks are not the only ones to have a role to play.

[24] Roa, M. M. (2022, November 11). La adopción de las criptomonedas en el mundo. Statista Infografías. https://es.statista.com/grafico/18425/adopcion-de-las-criptomonedas-en-el-mundo/

There is no doubt that this type of asset is beginning to be used more and more, not only by speculators, but also by individuals, companies, and institutions, given their usefulness and the technology they offer. Moreover, in many countries, they are already beginning to be regulated by states. In China, for example, economic activity with cryptocurrencies is prohibited by law, while in El Salvador, Bitcoin is already legal tender. In the European Parliament, different issues have already been voted on regarding the regulation of cryptocurrency mining, and in the US, depending on the state, there are regulations that are more in favour or more against cryptocurrency activity. For example, in Arizona, the implementation of Bitcoin as a legal tender is being studied.

To sum up this second introductory chapter, it can be said that cryptocurrencies are exchangeable digital assets, which have many different functionalities and projects behind them that can be applied to many sectors. Their market is emerging, highly volatile, and poorly regulated and has been growing steadily since 2014. Moreover, this market is highly dependent on the value of Bitcoin.

IV. BTC analysis and a comparison to governmental cryptocurrencies

4.1 Introduction to decentralisation…

Decentralization refers to distributing authority, decision-making, and control to multiple individuals or entities away from a central authority or organization. It is a fundamental concept in various fields such as the legal, and the technological.

In the context of technology, decentralization is often associated with distributed systems, where tasks and data are distributed across multiple nodes in a network rather than being stored and processed in a central location. This improves security as there is no single point of failure and improves resilience as the system can continue to function even if some nodes fail.[25]

In the legal field, more concretely in the international private law, many changes must be made, because two determinant aspects in the traditional international private law, which are the identity of the agents who make the transaction and the countries which they belong to according to their fiscal identity are now anonymous and untraceable with this new technology.

[25] Autor What is Decentralized Law? | The Complete Overview. (2020, 13 enero). The Decentralized Legal System. https://decentralizedlegalsystem.com/law/

One of the main benefits of decentralization is that all transactions are recorded on the blockchain and can be seen by anyone, increasing transparency and immutability. It also eliminates the need for an intermediary such as a bank to facilitate transactions, thus reducing costs and increasing efficiency. It also eliminates public notaries, such as notaries or land registrars.[26]

In summary, decentralization is an important concept in the field of technology. It is the foundational principle of blockchain technology and offers many advantages such as increased security, transparency, and immutability.

4.2 BTC history and fundamentals…

Bitcoin is a decentralized cryptocurrency that was created in 2009 by an individual or group of individuals using the pseudonym Satoshi Nakamoto. The identity of the creator(s) of Bitcoin is still unknown.

Bitcoin was created as a response to the global financial crisis of 2008, which highlighted the need for a decentralized, digital currency that was not controlled by any government or central authority. The *whitepaper*[27] titled "Bitcoin: A Peer-to-Peer Electronic Cash System" was published by Satoshi Nakamoto in 2008, describing the technical details of the Bitcoin network and its underlying blockchain technology.

Bitcoin is a cryptocurrency or decentralised digital asset that works through its own public blockchain and allows payments to be made between people. All this, without the need for intermediaries such as banks or regulators such as governments to perform its main function.

It is a currency with a limited supply of 21 million, of which there are almost 19 million in circulation today. The other two million are estimated to be mined by the year 2140. This characteristic makes it a deflationary currency, since unlike today's paper or fiat currencies, no more can be created or printed. The more Bitcoin is adopted, the more it will be worth and the more one will have to pay for it. The value of the currency fluctuates through pure market supply and demand.

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[26] Freeman Law. (2022, 7 octubre). Decentralized Governance Mechanisms | Blockchain Technology. https://freemanlaw.com/decentralized-governance-mechanisms/

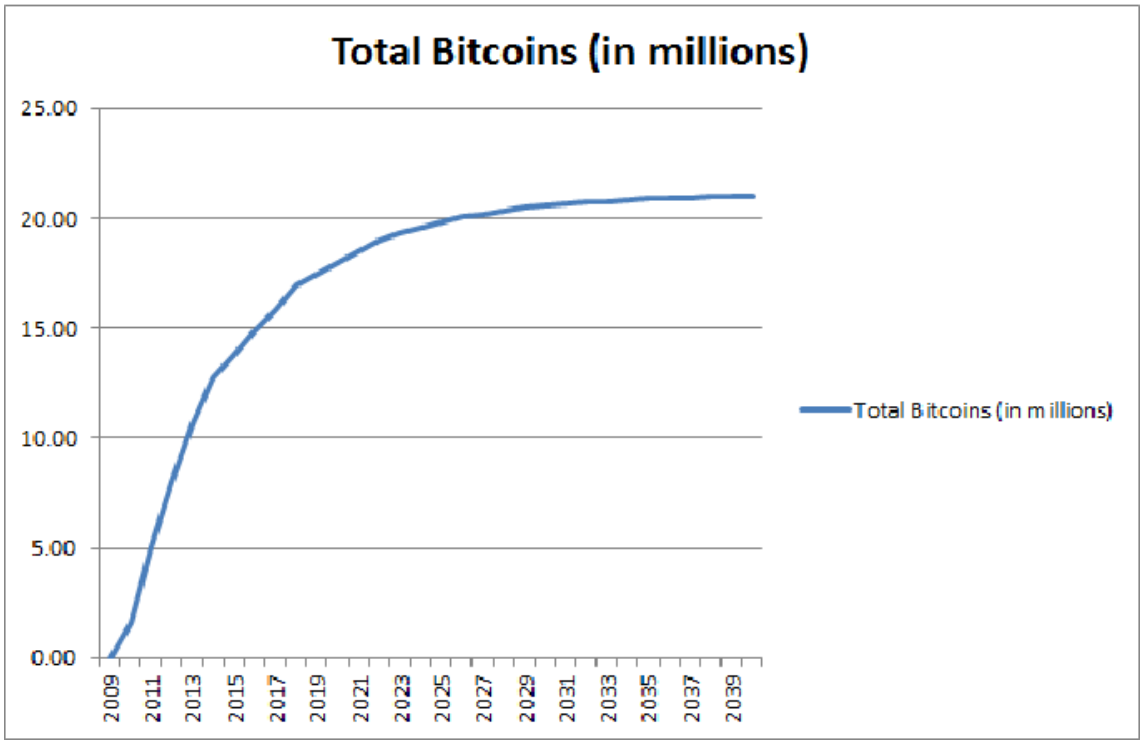
[27] A persuasive, authoritative, in-depth report on a specific topic that presents a problem and provides a solution.

The Bitcoin blockchain works with the proof-of-work protocol, which makes the mathematical operation to find the hash that allows the mining of the block to be encrypted more difficult as more and more bitcoins are mined.

When the concept of mining is introduced, it is referred to the activity carried out by the so-called "miners" or the group of people who work with high capacitated systems to solve the algorithms and obtain Bitcoins as a reward. However, there is more people than just miners who also have a node and the free Bitcoin software installed.

The job of a miner is basically to find the hash of the block that is full, to encrypt it and continue with the blockchain. The first miner to find the correct hash, which is difficult to calculate and requires a lot of computing power from one or more nodes, will receive a bonus in the form of Bitcoin directly. In this way, the blockchain itself continues based on fair competition between miners. Moreover, it cannot be hacked either, as all competing miners will be watching for cheating.

Turning to the reward a miner receives, this is also deflationary in nature. Every 210,000 blocks mined, a miner's reward will halve, this process is known as Halving and happens every 4 years or so. In 2008, a miner was given 50 Bitcoins for mining a block, today 6,25. Given Bitcoin's deflationary characteristic due to its limited supply, its long-term value has been continuously rising, which means that a miner earns much more today with a lower reward than in 2009 when Bitcoin was worth cents. Thus, the Bitcoin network gets the competition between miners to increase as time passes and the price increases, to ensure the proper functioning of the blockchain and Bitcoin.



Graph 2. BTC supply[28]

4.3 Governmental assets properties and comparison against BTC

A central bank digital currency (CBDC) is a digital form of legal tender issued and backed by a central bank. It is intended to act as an alternative to physical cash and can also be used for digital transactions. CBDC's main goal is to provide people with a safe, efficient, and accessible way to store and transfer value, like physical cash.

CBDCs are either account-based or token-based. Account-based CBDCs are the digital equivalent of traditional bank accounts, where the central bank tracks each user's balances and transactions. Token-based CBDCs, on the other hand, use digital tokens to represent currencies that can be traded and transferred between users without the need for a central intermediary.

One of the main features of CBDC is that it is issued and backed by a central bank. In other words, CBDC is considered legal tender and can be used to pay taxes and debts. This contrasts with other cryptocurrencies such as Bitcoin, that are decentralized and not

backed by a central bank. In addition, CBDCs are subject to the same regulations and oversight as physical cash and traditional bank accounts.

CBDCs also have potential economic and social benefits. They can improve financial inclusion by giving people a safe and accessible way to store and transfer value. It can also improve the efficiency and security of payment systems by reducing the need for intermediaries and increasing transparency.

However, CBDC also presents some concerns and challenges. One of the main concerns is that the powers and roles of commercial banks and the privacy of individuals may be compromised. There are also technical and regulatory challenges that need to be addressed.

Regarding the choice of the legal basis for adopting the digital euro, it will depend on its design and the objective it is intended to achieve. Article 296 TFEU requires that all EU legal acts must state the reasons on which they are based. For this reason, the ECB's (European Central Bank) report pays attention to this aspect although it does not end up opting for any legal basis.

In this respect, if the digital euro is a monetary policy instrument, like central bank reserves, the Euro system could invoke Article 127(2) TFEU, in conjunction with the first sentence of Article 20 of the Statute of the ESCB and the ECB, as a legal basis. If, on the other hand, the digital euro were to be made available to households and other private entities via accounts with the Euro system, the Euro system could invoke Article 127(2) TFEU in conjunction with Article 17 of the Statute of the ESCB and the ECB. If the digital euro were issued as a settlement medium for specific payment types, processed by a specific payment infrastructure, the legal basis would rather be Article 127(2) TFEU in conjunction with Article 22 of the Statute of the ESCB and the ECB.

Finally, if the digital euro were to be issued as an instrument equivalent to a banknote or cash, the most appropriate legal basis for its issuance would be Article 128 TFEU in conjunction with the first sentence of Article 16 of the Statute of the ESCB. Some academics have opted for the latter, stating that the digital euro resembles the concept of a banknote under the original law. However, a literal interpretation of Art. 128 TFEU would not lead to this conclusion. The provision states that "*the European Central Bank and the national central banks may issue banknotes*". The verb "issue", according to the Real Academia de la Lengua Española, means to produce and put into circulation paper

money. While it is true that the Treaties do not expressly prohibit the issuance of digital currency and that, as the CJEU has established, each provision of EU law must be interpreted in the light of "*its degree of development on the date on which the provision in question is to be applied*". However, a systematic interpretation of *effet utile or ut res magis valeat quam pereat* of the original law is in any case not an enabling legal basis but a possible way of interpreting a pre-existing rule.

In this sense, the most solid legal basis for adopting the digital euro is Article 133 TFEU, which stipulates that "*the European Parliament and the Council, acting under the ordinary legislative procedure, shall establish the measures necessary for the use of the euro as a single currency*". In the *Hessischer Rundfunk* case, C- 423/19[29], the CJEU has highlighted the importance of this legal basis for ensuring the uniqueness of the euro. This judgment examines the legal dispute that arose when two German citizens, Mr Johannes Dietrich and Mr Norbert Häring, were refused on 1 September 2015 the possibility of paying the mandatory fee to the public broadcaster of the Länder of Hessen (Hessischer Rundfunk) in cash. The applicants argued that both German national law (Article 14 of the Gesetz über die Deutsche Bundesbank) and EU law, Article 128(1) TFEU, establish an unconditional and unlimited obligation to accept euro banknotes as a means of payment for settling monetary debts as the only legal tender in the Union.

The CJEU has used this case, first, to confirm that the monetary policy mandate of the ESCB is not limited to its operational implementation, but "*involves a regulatory dimension aimed at ensuring the status of the euro as the single currency*". Second, the euro, being legal tender, "*cannot be rejected for the payment of a debt denominated in the same currency unit, at face value and in full discharge of its liabilities".* However, the Union's exclusive competence for the monetary policy does not preclude Member States whose currency is the euro, within the framework of their competences (such as the organisation of their public administration), from regulating the procedures for extinguishing pecuniary obligations and, on occasion, exempting the obligation to accept payment in cash; provided that the measures taken respect the principle of proportionality

[29]STJUE 26 enero 2021, C 423/19, "Hessischer Rundfunk", ECLI:EU:C:2021:63;
Press corner (s. f.). European Commission - European Commission. https://ec.europa.eu/commission/presscorner/detail/en/ip_22_6423

and are justified on public policy grounds such as security, the fight against crime or the interest of ensuring an efficient organisation of payments in society.

Even though according to the German economist George Knapp (1923)[30] money is a creation of law, however, as Advocate General Pitruzzella pointed out in the Press release No. 119/20 in the Court of Justice of the European Union,[31] it does not there is no definition of the concept of currency in EU law or most national legal systems. This could hinder the legislative process of a CBDC in EU law since it would not be possible to regulate a digital version of the currency without a prior definition of what is meant by currency.

Notwithstanding this legal loophole, EU law does regulate in detail some elements of the single currency, such as the technical specifications or everything related to its putting into circulation. Thus, Article 128(1) TFEU states that the banknotes issued by the ECB and the NCBs shall be the only banknotes that have the status of legal tender in the Union, and it is also recognised that only the ECB may authorise the issue of euro banknotes in the Union. However, the physical production of coins is not carried out in a centralised manner. Article 128(2) TFEU grants competence for the minting of coins to the Member States. For this reason, euro coins and banknotes are produced by national mints under the control of the ECB[32] and its approval of the technical product specifications as well as the volume of coins and banknotes according to the country. For their part, the NCBs are responsible for putting them into and withdrawing them from circulation, as well as for destroying damaged banknotes. In this respect, in the event of the adoption of a digital euro, subsequent implementing rules, such as technical specifications, should also be adopted through the ordinary legislative procedure based on Art. 133 TFEU.

Comparing Bitcoin and Central Bank Digital Currency (CBDC), although both are digital currencies, there are some key differences. One of the main differences is centralization versus decentralization. Bitcoin is a decentralized cryptocurrency, not controlled by any government or central authority. Transactions are recorded on a decentralized public

[31] *Autor Press corner. (s. f.). European Commission - European Commission.* https://ec.europa.eu/commission/presscorner/detail/en/ip_22_6423

[32] Hernández Fernández, F. (2021). Hacia una moneda digital europea. El euro 2.0. Revista de Derecho Comunitario Europeo, 70, 1006-1033. https://doi.org/10.18042/cepc/rdce.70.06

ledger called a blockchain, and currency is created through a process called mining performed by people called miners.

CBDC, on the other hand, is centralized as it is issued and supported by a central bank. Transactions are recorded on a central ledger and the central bank controls the currency supply.

Another important difference is anonymity. Bitcoin transactions are pseudonyms. This means that the identities of the people behind the deals have not been made public but can be traced. CBDCs, on the other hand, is linked to an individual's identity and can be tracked by central banks, making them potentially fully traceable.

Additionally, Bitcoin is based on the *Proof of Work* [33](PoW) consensus algorithm, which requires computational power to validate and add transactions to the blockchain. CBDC, on the other hand, can be based on different consensus algorithms, such as *Proof-of-Stake* [34](PoS), and can also be based on hybrid consensus mechanisms.

In terms of security, Bitcoin is considered safe, as it works in a decentralized way and this makes nearly impossible to control most of the Bitcoin supply, as the possession of the 51% of the nodes that maintain the currency working would be needed. However, it has forms of *cyber-attacks*[35] to individual wallets, as well as price fluctuations. CBDCs, on the other hand, are backed by central banks and regulated by the government, which makes them considered safer and more stable.

In summary, Bitcoin is a decentralized cryptocurrency that offers not only anonymity and security but also volatility, while CBDC is a centralized digital currency issued and backed by a central bank, offering more traceability and stability.

The most known case is the digital yuan in China. The digital Chinese yuan[36], also known as Digital Currency Electronic Payment (DCEP) has been a topic of discussion and

[33] A form of cryptographic proof in which one party (the prover) proves to others (the verifiers) that a certain amount of a specific computational effort has been expended.
[34] A cryptocurrency consensus mechanism for processing transactions and creating new blocks in a blockchain.
[35] Any kind of malicious activity that attempts to collect, disrupt, deny, degrade, or destroy information system resources or the information itself.
36 Wall Street Journal. (2021, March 17). Why China's New Digital Currency Raises Privacy Concerns | WSJ [Vídeo]. YouTube. https://www.youtube.com/watch?v=Y6YLQXM5izM

controversy since its announcement. While there are potential benefits to having a digital currency, there are also concerns about privacy, security, and control.

One issue with the digital chinese yuan is that it gives the government even more control over individuals' financial transactions. Since the digital currency is issued and controlled by the central bank, the government can monitor and track every transaction made using the digital yuan. This raises concerns about privacy and individual freedom.

Another concern is security. Since the digital yuan is a new form of currency, there are worries that it may be vulnerable to hacking or other security breaches. This could result in significant financial losses for individuals and businesses using the digital yuan.

Additionally, the digital yuan could potentially lead to greater financial surveillance by the Chinese government. If the government has complete control over the digital currency, it could use this control to track and monitor the financial activities of its citizens, which could lead to increased censorship and control.

Finally, there are concerns about the impact that a digital yuan could have on the global economy. As China continues to develop and promote its digital currency, it could potentially challenge the dominant role of the US dollar in international trade and finance. This could lead to increased competition and potentially destabilize the global financial system.

4.4 El Salvador case

In June 2021, El Salvador became the first country in the world to adopt Bitcoin as legal tender. This decision by President Nayib Bukele was met with both enthusiasm and skepticism, as it marked a significant shift in the way a country's economy operates. In this essay, we will examine the adoption of Bitcoin in El Salvador, the reasons behind the decision, and the future of the country regarding cryptocurrencies.

El Salvador's adoption of Bitcoin as legal tender was announced in early June 2021. The law was passed by the country's Legislative Assembly, which is controlled by Bukele's political party. The law established that Bitcoin would be accepted as payment for goods and services in the country, alongside the US dollar, which has been the official currency of El Salvador since 2001.

The decision to adopt Bitcoin was based on several factors, including the potential for financial inclusion, reducing the cost of remittances, and attracting foreign investment.

According to the World Bank, El Salvador received over $6 billion in remittances in 2020, which represents around 16% of the country's GDP. By using Bitcoin, it is hoped that the cost of remittances can be reduced, as transactions can be made more quickly and at a lower cost than traditional methods.

Another reason behind the adoption of Bitcoin is to promote financial inclusion. El Salvador has a large population of people who are unbanked or underbanked, meaning they do not have access to traditional banking services. By adopting Bitcoin, it is hoped that these people can participate in the economy more easily, as they will be able to use their mobile phones to access digital wallets and make transactions.

The adoption of Bitcoin has not been without controversy, however. Some critics have raised concerns about the volatility of the cryptocurrency, which can fluctuate significantly in value over short periods. Others have questioned the legality of the move, as Bitcoin is not recognized as legal tender in many other countries.

Despite these concerns, the adoption of Bitcoin in El Salvador has been hailed as a significant step forward for cryptocurrencies. Other countries, including Paraguay and Panama, have expressed interest in following El Salvador's lead and adopting Bitcoin as legal tender.

Looking to the future, El Salvador has ambitious plans for further integrating cryptocurrencies into its economy. In November 2021, President Bukele announced that the country would build a geothermal plant to mine Bitcoin using renewable energy. The project is expected to provide jobs and investment in the country, as well as further promoting the use of Bitcoin.

El Salvador is also exploring the possibility of issuing a state-backed cryptocurrency, which would be used alongside Bitcoin and the US dollar. This would enable the country to have greater control over its currency and potentially reduce its reliance on the US dollar.

In conclusion, El Salvador's adoption of Bitcoin as legal tender represents a significant shift in the way a country's economy operates. While the move has not been without controversy, it has the potential to promote financial inclusion, reduce the cost of remittances, and attract foreign investment. Looking to the future, El Salvador has ambitious plans for further integrating cryptocurrencies into its economy, including the

construction of a Bitcoin mining plant and the possible issuance of a state-backed cryptocurrency. It remains to be seen whether other countries will follow El Salvador's lead in adopting Bitcoin as legal tender, but the move has undoubtedly placed cryptocurrencies firmly in the spotlight.

V. CONCLUSIONS

First. It can be noted that the current rules on private international law are sufficiently broad and flexible to accommodate smart contracting in a relatively satisfactory manner. However, some obstacles such as the possible anonymity of the contracting parties or the difficulty of determining the place of performance of the contract could undermine the effectiveness of these rules in specific cases.

In addition, the potential of blockchain technology is undeniable when it comes to revolutionising practically all areas of today's society, especially in cybersecurity and international trade. However, it is a technology that is only a few years old and therefore there are still many gaps in what its legal framework would be. This means that society perceives it as insecure and possibly fraudulent. Even so, looking at it from a more legal point of view, it is obvious that being something so disruptive, it does not have a complete and updated legal framework according to its characteristics. This means that there is an urgent need to adapt the laws to each of the derivatives of this technology to make them more judicially secure and promote their use.

Furthermore, the governments may take the lack of legal legislation and jurisprudence as an excuse to maintain the current economic system, even if it is less optimal and fair for the society. We must consider that with the current currency systems, government central banks have the absolute power to issue the currency in the way they prefer, so that only the needs of a low percentage of the society are satisfied, meanwhile the same government will state that they work hardly to satisfy the needs of every inhabitant of the country or region.

Second. Bitcoin and CBDCs are completely different in many aspects, but they do have in common most of their technology, which is blockchain. In addition, CBDCs are not created to simplify people lives, but to keep the track of the society and make them dependant of the government, as it is happening nowadays in China, where the digital yuan, that is the new alternative proposed by the Chinese central bank to replace the current yuan, will have a date of expire, meaning that if it’s not spent, it will be eliminated from the account.

In this sense, governments want to have their country controlled, and the easiest way to control the society is to control their payments, because payments that are not made in cash also contain their location and establishment in which they have paid. If the inhabitants of a country have neither savings nor the capacity to do so, they will be subject for life to the insecurity of not knowing when they may run out of savings to subsist on. This makes them less powerful vis-à-vis governing bodies such as the government or central banks and easier to dominate. In other words, it is exactly what governments are looking for, a weaker society in thrall to them so that they can continue to reign easily and unanimously.

Besides, what governments do is categorize Bitcoin and similar cryptocurrencies as a fraud or something related to gambling, via press or TV, that are also controlled and subsidised by them. This leads to a general negative thinking of the society regarding this kind of currencies, although the same central banks and governments omit lots of offenses made by national banks to citizens to preserve the credibility and the good image they have in terms of security.

For that reason, Bitcoin is the most powerful alternative to battle against the government central bank, via decentralisation and deflationary policies to fight inflation and preserve value in a better way. In addition, it can be a fairer substitute for society by eliminating many of today's bureaucratic processes in the field of personal finance, such as traditional banks that subsist by imposing abusive interest rates with the approval of the state. However, not all is rosy, and the implementation of a finite and decentralised currency means that the users of the currency, i.e., the inhabitants of the country, must be more aware of how and to whom they make each of their transactions.

Third. it can be concluded that the European Union has established a comprehensive regulatory framework for the single currency, the euro. The European Central Bank (ECB) and National Central Banks (NCBs) play crucial roles in issuing, managing, and controlling the currency.

While banknotes have a centralized production and are issued exclusively by the ECB, the production of coins is decentralized, with Member States responsible for minting them

under the ECB's supervision. This decentralized approach allows for a certain level of national autonomy while maintaining overall control and coordination by the ECB.

The NCBs are responsible for the distribution, withdrawal, and destruction of banknotes, indicating a shared responsibility with the ECB in managing the physical aspects of the currency.

The mention of a potential digital euro suggests the EU's consideration of technological advancements and the possibility of introducing a digital form of the currency in the future. This would require additional regulations and technical specifications to be developed through the ordinary legislative procedure.

Overall, the EU's regulation of the single currency demonstrates a balance between centralization and decentralization, ensuring a unified monetary system while respecting the autonomy of Member States. The focus on technical specifications and control over the currency's production and circulation reflects the EU's commitment to maintaining stability and confidence in the euro.

Fourth. Nayib Bukele's adoption of Bitcoin in El Salvador can be seen as a bold and innovative step towards embracing cryptocurrency and exploring its potential benefits. The decision to make Bitcoin legal tender in the country has garnered attention globally and has the potential to bring various positive outcomes.

Firstly, the adoption of Bitcoin can promote financial inclusion by providing access to banking services for the unbanked population in El Salvador. With approximately 70% of the population lacking access to traditional banking services, Bitcoin can offer an alternative means for individuals to engage in financial transactions and participate in the global economy.

Secondly, by embracing Bitcoin, El Salvador has the opportunity to attract foreign investment and stimulate economic growth. Being one of the first countries to adopt a cryptocurrency as legal tender can position the nation as a frontrunner in the crypto space, attracting tech-savvy entrepreneurs and businesses interested in exploring new opportunities.

Furthermore, the use of Bitcoin can potentially reduce transaction costs and facilitate faster cross-border payments, enabling smoother international trade and remittance flows.

This can greatly benefit the Salvadoran diaspora, who often rely on remittances as a significant source of income.

Additionally, the transparency and immutability of blockchain technology underlying Bitcoin can contribute to combating corruption and increasing accountability in financial transactions. The decentralized nature of cryptocurrencies can provide a level of trust and security that traditional financial systems may lack.

While the adoption of Bitcoin in El Salvador is not without challenges and risks, such as volatility and regulatory concerns, it represents an innovative approach to embracing technological advancements and exploring the potential benefits of cryptocurrencies. The decision demonstrates a willingness to adapt to changing global trends and positions El Salvador at the forefront of the crypto landscape.

It is important to monitor the outcomes and evaluate the long-term effects of this adoption. However, the decision to adopt Bitcoin by Nayib Bukele and El Salvador showcases a proactive mindset and a willingness to explore new possibilities that could potentially bring positive economic and financial advancements to the country.

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