

# CRYPTOCURRENCY AND BLOCKCHAIN-TECHNOLOGY IN DIGITAL ECONOMY: UNDERSTANDING THE DEVELOPMENT GENESIS

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## ***Abstract***

*Different types of electronic money as a possible alternative to the existing money have only appeared recently; this has been attracting considerable attention from not only economists but also ordinary citizens who are active users of modern financial services in the global Internet. Studying the nature of cryptocurrencies and the model of institutionalized regulation in foreign countries will allow to understand this phenomenon in more detail with the subsequent goal of creating and developing a digital economy and ensuring financial and economic safety in the modern world and the national financial systems. The emergence of cryptocurrencies is one of the key reasons of the growing demand for global social economic changes due to the modern information and telecommunication technologies actively developing in different spheres of modern life (or, to put it in less radical terms, a complex of institutional reforms). The citizens' level of trust towards the state decreases worldwide, with the decrease rates depending on the region. The most progressive part of society is in favour of replacing the state with a group of service companies competing against each other. In view of this, not only the so-called public contract, but also the entire international institutional and legal system are facing serious changes. However, decentralized systems are one of the key tools to implementing these evolutionary changes. This study has considered the main milestones in the development of cryptocurrencies. The economic essence of digital (fiat) money and cryptocurrencies is analysed, a comparative characteristic is given. The features of state regulation of cryptocurrencies in Australia are studied. The analysis of legal regulation in Great Britain is carried out. The experience of state regulation in the European Union is studied. The main stages of development of state regulation in China, the USA and*

*Ukraine are investigated. The measures of legal regulation in the USA are considered. The stages of development of the relations between the Bitcoin community and the supervisory authority of Ukraine represented by the National Bank of Ukraine are analysed in the context of legal regulation. The main initiatives and proposals of legal regulation of cryptocurrencies in the Russian Federation are studied in detail. Additionally, we have carried out a SWOT analysis of cryptocurrencies based on the conducted research. We have described the specifics of safely using cryptocurrencies (from FATF's standpoint). We have considered the algorithm of the schematic diagram for ensuring financial and economic safety by institutional measures while using the blockchain technology. We have hypothesized that the inertia of the money mass depends on the economy. Studying the regulation of cryptocurrencies in foreign countries, we have found certain similarities. Firstly, each country seeks to create a favourable climate for the development of the latest digital technologies (blockchain) and sees the high potential of using technologies in the private as well as in the public sector. Secondly, the market of cryptocurrencies is growing at high rates and the state, and by failing to adapt the tax code to the challenges of modern digital economy, the state's budget receives less income as cryptocurrencies are out of legal jurisdiction. Thirdly, more than a thousand of various cryptocurrencies exist today, therefore, it is necessary to develop uniform standards of regulation of cryptocurrencies. We have shown that the majority of the countries have declared the creation of the national cryptocurrency, with two parallel scenarios ensuing: on the one hand, it is necessary to regulate the circulation of the cryptocurrencies emitted earlier and to identify them as «digital goods / tool» within the legal framework; on the other hand, it is necessary to discover and investigate the advantages of simulating national cryptocurrencies. Based on the evolution of cryptocurrencies and blockchain, we have analysed the problems of the formation of digital economy, and have outlined the directions for further research.*

**Keywords:** *Cryptocurrency, Digital Economy, Electronic Money, Bitcoin, Blockchain, Development Genesis*

## 1. Introduction

A cryptocurrency is a digital or virtual currency that is secured by cryptography, which makes it nearly impossible to counterfeit or double-spend. Many cryptocurrencies are decentralized networks based on blockchain technology a distributed ledger enforced by a disparate network of computers. A defining feature of cryptocurrencies is that they are generally not issued by any central authority, rendering them theoretically immune to government interference or manipulation.

Blockchain technology has the potential to disrupt digital interaction in our economy and society. The technology's rapid and dynamic technical development is driven by startups and incumbents alike, creating a myriad of applications across economic and

societal domains. However, the implications of this potential new technological paradigm have not yet reached wider public debate, nor have economic and societal implications been adequately explored. Distributed ledger technologies and blockchains stem from an ideological open-source movement and facilitate the exchange of assets via a complementary technical layer on top of the internet [1]. Current platform-based business structures like Facebook, Uber, Airbnb or Amazon could be replaced by evolving decentralized ecosystems. At the same time, community-owned neutral networks could facilitate a re-empowerment of individuals including but not limited to the sovereignty over one's data. It is likely that blockchain technology will eventually affect everyone in our society. In this book the key concepts of blockchain technology and an overview of the machinations of different blockchain ecosystems are presented. The socio-economic impact of this new technology is discussed including its impact on sectors such as energy, data, capital markets, logistics, and gambling. Challenges of adoption and roll out will be discussed with a specific focus on scalability and regulation. Non-technical and accessible, the book seeks to demystify the functionalities of blockchains, their potential as well as their likely socio-economic impacts.

The continued evolution of cryptocurrencies and the underlying exchanges on which they trade has generated tremendous urgency to develop our understanding of a product that has been identified as a potential enhancement of and replacement for traditional cash as we know it. The market efficiency of Bitcoin and found through a battery of tests that Bitcoin was inefficient, although it was becoming less inefficient over time [2]. Much research continues to identify this asset class to contain exceptionally high levels of volatility when compared to more established counterparts. However, cryptocurrencies as a new asset class are not without its substantial issues, particularly that of the provision of a platform for criminality and, indeed, major cybercriminal events. While much debate surrounds the process in which this product can be regulated, there exists a wide variety of channels in which criminality can develop and thrive. Regulatory bodies and policy-makers alike have observed the growth of cryptocurrencies with a certain amount of scepticism, based on this growing potential for illegality and malpractice. Around \$76 billion of illegal activity per year involve Bitcoin (46% of Bitcoin transactions) [3]. This is estimated to be in the same region of the U.S. and European markets for illegal drugs, and is identified as 'black e-commerce'. While the volatility of cryptocurrency price returns has been studied, the potential for market manipulation appears to have been broadly identified in cryptocurrency cross-correlations and market interdependencies. Such researches have fine-tuned the focus of regulators, policy-makers and academics alike, broad trust in both cryptocurrencies and the exchanges on which they trade cannot be sustained with such significant questions of abnormality remaining unanswered. Developing understanding of these new products and how to mitigate cybercriminal and their illicit use is an exceptionally important task in order to validate their further use and development.

Analysts present a SWOT analysis as a square segmented into four quadrants, each dedicated to an element of SWOT. This visual arrangement provides a quick overview of the company's position. Although all the points under a particular heading may not be of equal importance, they all should represent key insights into the balance of opportunities and threats, advantages and disadvantages, and so forth [4].

Crypto currency is a collection of technologies based on Satoshi Nakamoto's 2009 invention, Bitcoin, which is counterfeit-proof and decentralized. Several cryptographic technologies (hash sums, asymmetric keys, and proof-of-work) are combined to make this possible via a global, peer-to-peer network. The currency is in use today: It can be traded for other currency, or used to buy goods and services. Bitcoin is an electronic currency designed to use public protocol that implements it in a totally decentralized manner, so as not to need the control of any central issuing organization that manages it [5]. Though still in development, it has been proven to be a modern payment system referred to have been used in some procedures commonly associated to money laundering or trafficking of illegal substances of various kinds. Thus, in this article, we analyse those features which transform such a crypto currency in a useful tool to perform any kind of transactions far from the control of any kind of regulatory agency, as well as we pinpoint some of the fields in which their usage can derive in new illicit behaviours.

## 2. Cryptocurrency understanding

Cryptocurrencies are digital or virtual currencies underpinned by cryptographic systems. They enable secure online payments without the use of third-party intermediaries. "Crypto" refers to the various encryption algorithms and cryptographic techniques that safeguard these entries, such as elliptical curve encryption, public-private key pairs, and hashing functions.

Cryptocurrencies can be mined or purchased from cryptocurrency exchanges. Not all ecommerce sites allow purchases using cryptocurrencies. In fact, cryptocurrencies, even popular ones like Bitcoin, are hardly used for retail transactions. However, the skyrocketing value of cryptocurrencies has made them popular as trading instruments. To a limited extent, they are also used for cross-border transfers [6].

Central to the appeal and functionality of Bitcoin and other cryptocurrencies is blockchain technology. As its name indicates, blockchain is essentially a set of connected blocks or an online ledger. Each block contains a set of transactions that have been independently verified by each member of the network. Every new block generated must be verified by each node before being confirmed, making it almost impossible to forge transaction histories. The contents of the online ledger must be agreed upon by the entire network of an individual node, or computer maintaining a copy of the ledger.

Experts say that blockchain technology can serve multiple industries, such as supply chain, and processes such as online voting and crowdfunding. Financial institutions such as JPMorgan Chase & Co. (JPM) are testing the use of blockchain technology to lower transaction costs by streamlining payment processing.

- **Types of Cryptocurrencies**

Bitcoin is the most popular and valuable cryptocurrency. An anonymous person called Satoshi Nakamoto invented it and introduced it to the world via a white paper in 2008. There are thousands of cryptocurrencies present in the market today.

Each cryptocurrency claims to have a different function and specification. For example, Ethereum's ether markets itself as gas for the underlying smart contract platform. Ripple's XRP is used by banks to facilitate transfers between different geographies [7].

Bitcoin, which was made available to the public in 2009, remains the most widely traded and covered cryptocurrency. As of May 2022, there were over 19 million bitcoins in circulation with a total market cap of around \$576 billion. Only 21 million bitcoins will ever exist.

In the wake of Bitcoin's success, many other cryptocurrencies, known as "altcoins," have been launched. Some of these are clones or forks of Bitcoin, while others are new currencies that were built from scratch. They include Solana, Litecoin, Ethereum, Cardano, and EOS. By November 2021, the aggregate value of all the cryptocurrencies in existence had reached over \$2.1 trillion—Bitcoin represented approximately 41% of that total value.

- **Cryptocurrencies Legal**

Fiat currencies derive their authority as mediums of transaction from the government or monetary authorities. For example, each dollar bill is backstopped by the Federal Reserve.

But cryptocurrencies are not backed by any public or private entities. Therefore, it has been difficult to make a case for their legal status in different financial jurisdictions throughout the world. It doesn't help matters those cryptocurrencies have largely functioned outside most existing financial infrastructure. The legal status of cryptocurrencies has implications for their use in daily transactions and trading. In June 2019, the Financial Action Task Force (FATF) recommended that wire transfers of cryptocurrencies should be subject to the requirements of its Travel Rule, which requires AML compliance. [8]

As of December 2021, El Salvador was the only country in the world to allow Bitcoin as legal tender for monetary transactions. In the rest of the world, cryptocurrency regulation varies by jurisdiction.

Japan's Payment Services Act defines Bitcoin as legal property. Cryptocurrency exchanges operating in the country are subject to collect information about the customer and details relating to the wire transfer. China has banned cryptocurrency exchanges and mining within its borders. India was reported to be formulating a framework for cryptocurrencies in December [9].

Cryptocurrencies are legal in the European Union. Derivatives and other products that use cryptocurrencies will need to qualify as "financial instruments." In June 2021, the European Commission released the Markets in Crypto-Assets (MiCA) regulation that sets safeguards for regulation and establishes rules for companies or vendors providing financial services using cryptocurrencies. Within the United States, the biggest and most sophisticated financial market in the world, crypto derivatives such as Bitcoin futures are available on the Chicago Mercantile Exchange. The Securities and Exchange Commission (SEC) has said that Bitcoin and Ethereum are not securities.

- **Advantages and Disadvantages of Cryptocurrency**

- **Advantages [10]**

- Cryptocurrencies represent a new, decentralized paradigm for money. In this system, centralized intermediaries, such as banks and monetary institutions, are not necessary to enforce trust and police transactions between two parties. Thus, a system with cryptocurrencies eliminates the possibility of a single point of failure, such as a large bank, setting off a cascade of crises around the world, such as the one that was triggered in 2008 by the failure of institutions in the United States.
- Cryptocurrencies promise to make it easier to transfer funds directly between two parties, without the need for a trusted third party like a bank or a credit card company. Such decentralized transfers are secured by the use of public keys and private keys and different forms of incentive systems, such as proof of work or proof of stake.
- Because they do not use third-party intermediaries, cryptocurrency transfers between two transacting parties are faster as compared to standard money transfers. Flash loans in decentralized finance are a good example of such decentralized transfers. These loans, which are processed without backing collateral, can be executed within seconds and are used in trading.
- Cryptocurrency investments can generate profits. Cryptocurrency markets have skyrocketed in value over the past decade, at one point reaching almost \$2 trillion. As of May 2022, Bitcoin was valued at more than \$550 billion in crypto markets.

- The remittance economy is testing one of cryptocurrency's most prominent use cases. Currently, cryptocurrencies such as Bitcoin serve as intermediate currencies to streamline money transfers across borders. Thus, a fiat currency is converted to Bitcoin (or another cryptocurrency), transferred across borders and, subsequently, converted to the destination fiat currency. This method streamlines the money transfer process and makes it cheaper.
- **Disadvantages [11]**
  - Though they claim to be an anonymous form of transaction, cryptocurrencies are actually pseudonymous. They leave a digital trail that agencies such as the Federal Bureau of Investigation (FBI) can decipher. This opens up possibilities of governments or federal authorities tracking the financial transactions of ordinary citizens.
  - Cryptocurrencies have become a popular tool with criminals for nefarious activities such as money laundering and illicit purchases. The case of Dread Pirate Roberts, who ran a marketplace to sell drugs on the dark web, is already well known. Cryptocurrencies have also become a favourite of hackers who use them for ransomware activities.
  - In theory, cryptocurrencies are meant to be decentralized, their wealth distributed between many parties on a blockchain. In reality, ownership is highly concentrated. For example, an MIT study found that just 11,000 investors held roughly 45% of Bitcoin's surging value.
  - One of the conceits of cryptocurrencies is that anyone can mine them using a computer with an Internet connection. However, mining popular cryptocurrencies requires considerable energy, sometimes as much energy as entire countries consume. The expensive energy costs coupled with the unpredictability of mining have concentrated mining among large firms whose revenues running into the billions of dollars. According to an MIT study, 10% of miners account for 90% of its mining capacity.
  - Though cryptocurrency blockchains are highly secure, other crypto repositories, such as exchanges and wallets, can be hacked. Many cryptocurrency exchanges and wallets have been hacked over the years, sometimes resulting in millions of dollars' worth of "coins" stolen.

- Cryptocurrencies traded in public markets suffer from price volatility. Bitcoin has experienced rapid surges and crashes in its value, climbing to as high as \$17,738 in December 2017 before dropping to \$7,575 in the following months. Some economists thus consider cryptocurrencies to be a short-lived fad or speculative bubble.

Any investor can purchase cryptocurrency from popular crypto exchanges such as Coinbase, apps such as Cash App, or through brokers. Another popular way to invest in cryptocurrencies is through financial derivatives, such as CME's Bitcoin futures, or through other instruments, such as Bitcoin trusts and Bitcoin ETFs [12].

Cryptocurrencies are a new paradigm for money. Their promise is to streamline existing financial architecture to make it faster and cheaper. Their technology and architecture decentralize existing monetary systems and make it possible for transacting parties to exchange value and money independently of intermediary institutions such as banks.

Cryptocurrencies are generated by mining. For example, Bitcoin is generated using Bitcoin mining. The process involves downloading software that contains a partial or full history of transactions that have occurred in its network. Though anyone with a computer and an Internet connection can mine cryptocurrency, the energy- and resource-intensive nature of mining means that large firms dominate the industry [13].

Bitcoin is by far the most popular cryptocurrency followed by other cryptocurrencies such as Ethereum, Binance Coin, Solana, and Cardano.

The SEC has said that Bitcoin and Ethereum, the top two cryptocurrencies by market cap, are not securities. It has not commented on the status of other cryptocurrencies.

### **3. The fundamentals of blockchain**

A protocol similar to blockchain was first proposed in a 1982 dissertation by David Chaum, an American computer scientist and cryptographer. In 1991, Stuart Haber and W. Scott Stornetta worked on furthering the description of a chain of blocks secured through cryptography. From this point on, some individuals began working on developing digital currencies [14].

In 2008, a developer or group of developers working under the pseudonym Satoshi Nakamoto developed a white paper that established the model for blockchain, including the hash method used to timestamp blocks. One year later, in 2009, Satoshi Nakamoto implemented a blockchain using the currency Bitcoin [15]. To this day, no one knows for sure who Satoshi Nakamoto really is.



Interest in enterprise application of blockchain has grown since then as the technology evolved and as blockchain-based software and peer-to-peer networks designed for enterprise use came to market. Enterprise leaders started to look more seriously at the technology early on, seeing more and more potential as early as 2014, when blockchain technology started to become more distinct from the idea of a specific currency. At that time, experts started to see blockchain's potential for financial transactions in general as well as its potential for other organizational transactions.

Actual adoption was slow. In 2019, Gartner found that just 1% of CIOs were adopting blockchain. Just a little more than that -- 8% -- were in short-term planning for looking into or implementing blockchain, with financial services, life sciences and healthcare among the industries with the highest rates of blockchain adoption.

The 2020 Global Blockchain Survey from Deloitte showed further growth in enterprise interest in the technology: In 2018, 43% of responding C-suite executives said blockchain will be critical and a top-five strategic priority. The number climbed to 53% in 2019 and to 55% in 2020 [16].

Blockchain is a record-keeping technology designed to make it impossible to hack the system or forge the data stored on it, thereby making it secure and immutable.

It is a type of distributed ledger technology (DLT), a digital system for recording transactions and related data in multiple places at the same time. Each computer in a blockchain network maintains a copy of the ledger to prevent a single point of failure [17], and all copies are updated and validated simultaneously.

Blockchain is also considered a type of database but differs substantially from conventional databases in how it stores and manages information. Instead of storing data in rows, columns, tables and files as traditional databases do, blockchain stores data in blocks that are digitally chained together. In addition, a blockchain is a decentralized database managed by computers belonging to a peer-to-peer network instead of a central computer like in traditional databases [18].

The cryptocurrency Bitcoin, launched in 2009, was the first popular application to successfully use blockchain. As a result, blockchain has been most often associated with Bitcoin and alternatives such as Dogecoin and Bitcoin Cash.

However, the use of blockchain has expanded to other applications since Bitcoin's inception.

Logistics companies use blockchain to track and trace goods as they move through the supply chain. Government central banks and the global financial community have been testing blockchain technology as a foundation for digital currency exchange. And various industries, including the legal community and entertainment [19], are using

blockchain as the basis for smart contracts and other mechanisms for transferring and protecting intellectual property rights.

In fact, many industries are now exploring blockchain-based applications as a secure and cost-effective way to create and manage a distributed database and maintain records for digital transactions of all types.

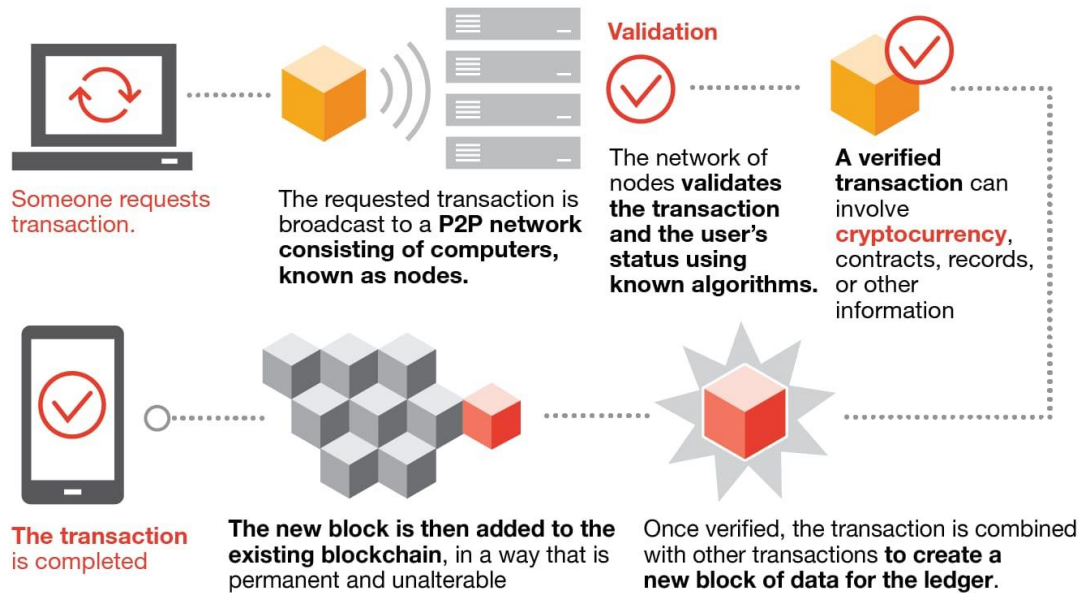
As a result, blockchain is increasingly viewed as a solution for securely tracking and sharing data between multiple business entities. How blockchain and distributed ledger technology work. Blockchain works via a multistep process, which in simple terms happens as follows [20]:

- 1) An authorized participant inputs a transaction, which must be authenticated by the technology.
- 2) That action creates a block that represents that specific transaction or data.
- 3) The block is sent to every computer node in the network.
- 4) Authorized nodes verify the transaction and add the block to the existing blockchain. (Nodes in public blockchain networks are referred to as miners; they're typically paid for this task -- often in a process called Proof of Work, or PoW -- usually in the form of cryptocurrency.)
- 5) The update is distributed across the network, which finalizes the transaction.

These steps take place in close to real time and involve a range of elements. Figure 1 shows the block creation and verification steps in more detail [21].

**Figure 1**

*The five main steps in executing and verifying transactions and data in a blockchain  
(How the Blockchain works)*



A blockchain ledger consists of two types of records, individual transactions and blocks. The first block consists of a header and data that pertain to transactions taking place within a set time period. The block's timestamp is used to help create an alphanumeric string called a hash.

After the first block has been created, each subsequent block in the ledger uses the previous block's hash to calculate its own hash [22].

Before a new block can be added to the chain, its authenticity must be verified by a computational process called validation or consensus. At this point in the blockchain process, a majority of nodes in the network must agree the new block's hash has been calculated correctly [23]. Consensus ensures that all copies of the blockchain distributed ledger share the same state.

Once a block has been added, it can be referenced in subsequent blocks, but it cannot be changed.

If someone attempts to swap out a block, the hashes for previous and subsequent blocks will also change and disrupt the ledger's shared state.

When consensus is no longer possible, other computers in the network are aware that a problem has occurred and no new blocks will be added to the chain until the problem is solved [24]. Typically, the block causing the error will be discarded and the consensus process will be repeated.

#### 4. The usage of SWOT analysis in cryptocurrency market analysis

SWOT analysis is a technique for assessing the performance, competition, risk, and potential of a business, as well as part of a business such as a product line or division, an industry, or other entity [25].

Using internal and external data, the technique can guide businesses toward strategies more likely to be successful, and away from those in which they have been, or are likely to be, less successful. Independent SWOT analysts, investors, or competitors can also guide them on whether a company, product line, or industry might be strong or weak and why, see Figure 2 for more clarification [26].

**Figure 2**  
*SWOT Analysis Factors*



Analysts present a SWOT analysis as a square segmented into four quadrants, each dedicated to an element of SWOT. This visual arrangement provides a quick overview of the company's position. Although all the points under a particular heading may not be of equal importance, they all should represent key insights into the balance of opportunities and threats, advantages and disadvantages, and so forth.

- **Strengths**

Strengths describe what an organization excels at and what separates it from the competition: a strong brand, loyal customer base, a strong balance sheet, unique technology, and so on. For example, a hedge fund may have developed a proprietary trading strategy that returns market-beating results. It must then decide how to use those results to attract new investors [27].

- **Weaknesses**

Weaknesses stop an organization from performing at its optimum level. They are areas where the business needs to improve to remain competitive: a weak brand, higher-than-average turnover, high levels of debt, an inadequate supply chain, or lack of capital [28].

- **Opportunities**

Opportunities refer to favourable external factors that could give an organization a competitive advantage. For example, if a country cuts tariffs, a car manufacturer can export its cars into a new market, increasing sales and market share [29].

- **Threats**

Threats refer to factors that have the potential to harm an organization. For example, a drought is a threat to a wheat-producing company, as it may destroy or reduce the crop yield. Other common threats include things like rising costs for materials, increasing competition, tight labour supply. and so on [30].

- **Internal**

What occurs within the company serves as a great source of information for the strengths and weaknesses categories of the SWOT analysis. Examples of internal factors include financial and human resources, tangible and intangible (brand name) assets, and operational efficiencies. Potential questions to list internal factors are [31]:

- (Strength) What are we doing well?
- (Strength) What is our strongest asset?
- (Weakness) What are our detractors?
- (Weakness) What are our lowest-performing product lines?

- **External**

What happens outside of the company is equally as important to the success of a company as internal factors. External influences, such as monetary policies, market changes, and access to suppliers, are categories to pull from to create a list of opportunities and weaknesses. Potential questions to list external factors are [32]:

- (Opportunity) What trends are evident in the marketplace?
- (Opportunity) What demographics are we not targeting?
- (Threat) How many competitors exist, and what is their market share?
- (Threat) Are there new regulations that potentially could harm our operations or products?

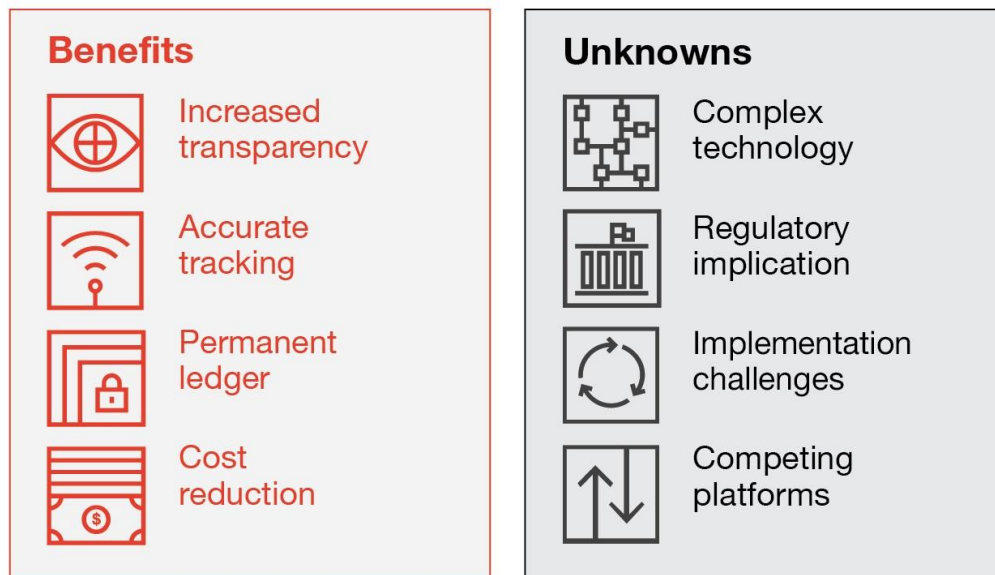
## 5. Blockchain, digital currency, cryptocurrency and bitcoin explained

The terms blockchain, cryptocurrency and Bitcoin are frequently lumped together, along with digital currency; sometimes they're erroneously used interchangeably.

Although they're all under the umbrella of distributed ledger technology, each one is a distinct entity, see Figure 3 [33].

**Figure 3**

*Making sense of bitcoin and blockchain technology*



- Blockchain is the technology; more specifically, it's the technology that constructs a decentralized digital ledger that enables exchanges between multiple parties in a secure, immutable manner.

- Digital currency refers to any form of currency that is available only in digital or electronic form and shared without an intermediary. This includes digital money

issued by governments and central banks as well as cryptocurrency. Digital currency is sometimes called digital money, electronic money, electronic currency or cyber cash.

- Cryptocurrency is a digital asset that can be exchanged on a blockchain network. It is a subset of digital currency. It is not issued by government entities. Think of cryptocurrency as tokens issued by private entities or groups that can be used to pay for items sold by those who also operate in the blockchain network. As of May 2021, market research website CoinMarketCap listed 4,993 different publicly traded cryptocurrencies. Bitcoin is the first cryptocurrency and still the most famous example.

## 6. Genesis block cryptocurrency

A Genesis Block is the name given to the first block a cryptocurrency, such as Bitcoin, ever mined. A blockchain consists of a series of so-called blocks that are used to store information related to transactions that occur on a blockchain network. Each of the blocks contains a unique header, and each such block is identified by its block header hash individually.

These blocks get layered one on top of the other, with the Genesis Block being the foundation and they grow in height until the end of the blockchain is reached and the sequence is complete. The layers and deep history of each sequence is one of the things that makes a blockchain-based cryptocurrency so secure.

Bitcoin's Genesis Block was the first instance of a proof-of-work blockchain system and is the template for all other blocks in its blockchain. In 2009, Bitcoin's pseudonymous developer, Satoshi Nakamoto, created the Genesis Block [34], which launched the cryptocurrency boom that is ongoing today.

Blocks are effectively digital containers where data pertaining to the transactions on the network are permanently recorded. A block records some or all of the most recent Bitcoin transactions that have not yet entered any prior blocks. Thus, a block is like a page of a ledger or record book. Each time a block is "completed," it gives way to the next block in the blockchain. A block is thus a permanent store of records that, once written, cannot be altered or removed.

The Genesis Block, also known as Block 0, is the very first block upon which additional blocks in a blockchain are added. It is effectively the ancestor that every other block can trace its lineage back to since every block references the one preceding it [35]. This began the process of validating bitcoin transactions and introducing new bitcoins into existence.

The next block, known as Block 1, wasn't mined until six days after the Genesis Block. This is considered odd as the average timestamp gap between blocks is intended to be 10 minutes.

There are a few theories regarding the delay: Some have theorized that Nakamoto spent six days mining the original block to test out the Bitcoin system in order to make sure it was stable (then backdated the timestamp), while more some cultish followers believe Satoshi intended to recreate the story of God's rest after creating the world in six days.

- **Bitcoin Basics**

Bitcoin is a type of cryptocurrency, which is based on the peer-to-peer electronic cash system developed by Satoshi Nakamoto. Bitcoin refers to the system and concept of the trading platform and "bitcoin" small "b" refers to the virtual coinage that is traded. There are no actual coins, hence the "bit"—or binary digit, the most basic unit of data in computing—before "coin." [36].

In the world of digital currency, blocks are files where data about the Bitcoin network and its transactions are permanently recorded. Each time a block is completed—that is, filled with bitcoin transactions it gives way to the next block in the blockchain. The only way to release new cryptocurrency into circulation is through mining. So, to "mine bitcoin" is to "mint currency."

Like gold, Bitcoin cannot be created arbitrarily. Gold must be mined out of the ground, and Bitcoin (BTC) must be mined via digital means.

Moreover, Bitcoin's founder stipulated that, like gold, the supply of bitcoin should be limited and finite. Only 21 million BTC can be mined in total. When miners have unlocked this many bitcoins, then the planet's supply will be tapped out, unless someone changes Bitcoin's protocol to allow for a larger supply.

- **Mysteries of the Genesis Block**

Beginning with the fact that the name "Satoshi Nakamoto" itself is a pseudonym, the Genesis Block and the founding of Bitcoin remains riddled with mystery. Shortly after the launch of Bitcoin, the person called "Satoshi Nakamoto" vanished from the face of the earth, leaving barely a trace. This auspicious event paved the way for the continuous enigma surrounding what fans lovingly call "the Block."

- **Bitcoin's Genesis Block Secret Message**

Another puzzling aspect of the Genesis Block is the secret message that Nakamoto instilled within the Block's raw data: "The Times 03/Jan/2009 Chancellor on brink of second bailout for banks."



Although Nakamoto never commented on the meaning of this text, most believe that it serves as a mission statement for Bitcoin itself.

The text is a headline for an article in the January 3, 2009 edition of the [London] Times about the British government's failure to stimulate the economy following the 2007–08 financial crisis. Nakamoto famously hated the idea of too-big-to-fail financial institutions and wanted Bitcoin to be different in that regard. Most people think that Nakamoto's reference to the article in the Genesis Block's code was a hint as to how Bitcoin is different from the big investment banks that needed government bailouts in 2008 [37].

- **The True Legacy of the Genesis Block**

Bitcoin cannot be bailed out because its process eliminates the middleman; there is no third-party, no corporate entity to go between BTC and the consumer.

The Bitcoin network checks and double-checks itself continuously via complex mathematical problems that are first resolved by computers, then by human bitcoin miners. One cannot proceed with any bitcoin trade until the math puzzle is validated. Another failsafe is that, because all transactions are stored forever, the actions of miners can always be traced, which makes it impossible to hide any evidence of wrongdoing.

In November 2013, early proteges of Nakamoto formed the Satoshi Nakamoto Institute (SNI) to educate the public about the history and vision of Bitcoin's creation. Among other interesting details, the SNI houses one of the biggest remnants of Nakamoto's online existence [38]: An extensive list of forum posts, broken into subject categories, that the Bitcoin creator penned while he still worked on the project.

Some Bitcoin fans hold the Genesis Block in a kind of cult-like reverence, as they do its anonymous creator. Fans are drawn to Bitcoin's arcane construct and idiosyncratic vocabulary with the fervour of one obsessed with a sophisticated arcade game.

Bitcoin devotees have been donating small amounts of BTC to the Genesis Block as a tribute to Satoshi Nakamoto. This is seen as a kind of sacrifice because once a coin is moved into the Genesis Block, it can never be moved again sort of like throwing a quarter into a fountain.

## **7. Blockchain assisting emerging economies**

When most people hear the word blockchain, which refers to a type of decentralized ledger technology, they immediately connect the term with cryptocurrencies. However, it is important to keep in mind that bitcoin just happened to be one of blockchain's

earliest and most popular applications; most experts believe that the potential for other applications of blockchain technology is vast.

In the most general sense, a blockchain is a system for recording information, although it is distinct from a typical database in the way it stores information; the information in a blockchain is stored in such a way that makes it difficult or impossible to change, hack, or cheat the system [39].

Blockchain technology promises a secure, peer-to-peer mechanism for verifying information. Each "block" in a blockchain contains a record of transactions in a decentralized ledger. Taken together, the blocks form a "chain" in a peer-to-peer network.

This impressive technology provides the support necessary for the decentralized, anonymized tracking and transaction of digital currencies around the world. While blockchains allow for cryptocurrencies to function, their functionality has applications beyond cryptocurrency. For example, banking and fintech payment companies have already demonstrated a major interest in blockchain technology.

From insurance and real estate to crowdfunding and data management, the potential applications of blockchain technology are numerous, and it's likely that there will continue to be new ways of adapting this technology to the mainstream business world in the future.

However, there is one important use of blockchain technology that exists outside its more traditional business applications: Some of the world's emerging economies are benefiting from the integration of blockchain technology in various ways. In diverse countries such as India, Kenya, and East Africa, blockchain technology has found uses in banking and financial services, supply chains, agriculture, and in managing land ownership records.

Among its many advantages (first and foremost being its ability to keep data secure), blockchain technology also claims to speed up and reduce the cost of transactions, and boost financial inclusion by providing more opportunities for those without easy access to financial services.

In many parts of the world, individuals do not have easy access to banking services. With blockchain technology, users across the globe could access banking services where they otherwise wouldn't have the opportunity. Particularly, individuals in emerging economies where there are not standard banks readily accessible could make use of blockchain technology to access these services [40]. One specific application is the use of blockchain for instant transfers of money between countries and without major fees and delay times.

## 8. Economic impact of cryptocurrency

Since the inception of Bitcoin in 2009, the economic impact of cryptocurrency has been both overt and subtle. Now in its eleventh year of existence, the digital or virtual money that takes the form of tokens or coins has established itself as a viable currency and form of investment, and the economic impact of cryptocurrency is evident in a number of areas in national and global communities [41].

As of January 2020, more than 2,000 cryptocurrencies exist and nearly 36.5 million people living in the U.S. own some form of cryptocurrency. Although cryptocurrency as a whole hasn't impacted larger sections of the economy like the stock market, 2017 saw hundreds of billions of dollars flow into cryptocurrency, further establishing it as a viable stock to invest in. In fact, experts consider cryptocurrency to be "digital gold" because [42], like precious metals, it retains value without the risk of depreciation.

Still a youthful currency, the economic impact of cryptocurrency is expected to continue to be a relevant discussion amongst economists and investors alike. Here are some of the ways the economic impact of cryptocurrency has manifested.

- **Economic Impact of Cryptocurrency Through Use of Blockchain**

Blockchain, the underlying technology behind cryptocurrency, has slowly moved into the mainstream. Many experts predict that the use of this technology in other markets can potentially unlock billions of dollars for those markets.

So far, Blockchain technology has proved to have impacted the following business practices in several industries [43]:

- Blockchain has improved financial institutions' cross-border transactions
- Messaging apps have used the technology in favor of deals with private investors
- Car leasing and sales can use Blockchain to streamline car leasing
- Cloud computing can use Blockchain to execute smart contracts and resist hacking
- Government and public records can use Blockchain to reduce paperwork and fraud while increasing accountability
- Companies like Kodak intend to launch their own cryptocurrency to make sure photographers are paid properly

- **Economic Impact of Cryptocurrency on Job Markets**

The rise of cryptocurrency has brought with it an entire industry that is dedicated to supervising cryptocurrency exchanges that take place throughout the world. While

some early adopters have become rich quickly, others have developed companies that rely on trading as their source of income.

The number of jobs in the Blockchain industry increased from just over 1,000 in 2016 to over 4,000 in 2017. Software engineers have been the most directly sought-after professionals for the cryptocurrency industry [44]. And while this job market has fluctuated in the past few years, interest in these professions have not faltered.

As cryptocurrency continues to be legalized outside of the western world, we can expect to see more global investments and job creation within the field.

- **Economic Impact of Cryptocurrency on Unstable Domestic Currencies**

Since the 1970s, confidence in U.S. banks has consistently decreased. And in countries where the domestic currency is constantly fluctuating, causing living conditions to plummet, cryptocurrency can be used to circumvent these situations. Cryptocurrency is a wholly utilitarian practice in which peers oversee each transaction without the oversight of the government.

1.7 billion people worldwide don't have a bank account. They are financially disadvantaged and often must resort to dangerous lending practices. Interestingly, a large number of this population possess a cell phone, and because cryptocurrencies can be transacted through mobile applications, cryptocurrency can easily become a viable option for them.

An added advantage of cryptocurrency is that it's completely decentralized, which means that for citizens living in countries with currency instability, cryptocurrency allows them to trade freely across borders with citizens of more well-off countries, creating a level of economic equality [45].

- **Economic Impact of Cryptocurrency Through Low Transaction Costs**

Aside from Bitcoin in its current state, transaction costs for most cryptocurrency users are minimal to none. Because cryptocurrencies and Blockchain are decentralized and do not require investment into physical property, there are no extra costs that users are expected to account for. This means, unlike a branch of a bank, there is no need to pay utility bills, rental property, or employee wages.

Little to no transaction costs also encourages trust in the system of cryptocurrency and in turn sees more use in financial tools, transactions, and a closer global economy.

- **Economic Impact of Cryptocurrency Through Transparency**

Blockchain technology and cryptocurrency transactions are automated, digitized, and tracked on a ledger that can never be manipulated by people, companies, or

governments. Not only does this bring power and freedom to the people, but it also diminishes the risk of fraud and corruption. You can't exactly fool a system that cannot be changed.

This is particularly beneficial for underdeveloped countries and government-oppressed peoples. The utilitarian structure of cryptocurrencies allows these people to invest and transact with a global economy, which can boost their own economy and quality of life.

- **Economic Impact of Cryptocurrency for Entrepreneurs**

With its decentralized format, cryptocurrency is a global economy in which all users exchange currency regardless of their citizenship. This is particularly profound for entrepreneurs who are no longer subject to a national audience but one that is international with whom funds can be exchanged without the hassle of exchange rates and international law. In fact, there are cryptocurrency companies that assist business owners in Africa make financial transactions with European, American, and Asian companies with the intention of creating financial coverage and financial liberation through exchanges worldwide.

In an increasingly digitized world, the social need to communicate across borders is now manifesting itself in financial needs, and traditional financial institutions are not able to provide this as well as cryptocurrencies can. In time, entrepreneurs can assist in the opportunities to invest in, save, and send money across borders, in turn reframing global business practices.

- **Economic Impact of Cryptocurrency on Small Businesses**

Big businesses are taking over many different markets, and supporting small businesses is now more critical than ever before. Small businesses are not only important, but they allow customers to support a good, genuine company and a great cause. Cryptocurrency can provide several benefits to small businesses.

The low transaction fees that come with cryptocurrency are one of the biggest reasons many establishments have opted to accept the digital currency. While traditional forms of currency, especially credit and debit cards, can cost businesses high processing fees, cryptocurrency takes away nearly everything.

In addition to low transaction costs, crypto transactions can happen almost instantly. While debit and credit transactions may take a few days to process fully, a crypto transaction is fast and efficient. Furthermore, there is no need for a third party in crypto transactions meaning the transactions can happen quickly.

Another great benefit of accepting crypto is that it can open small businesses to broader audiences. Due to crypto being a universal, international currency, it can be used by anyone, enabling small companies to serve global customers. Additionally, with crypto

being popular among younger individuals, accepting cryptocurrency can allow a small business to appeal to a younger audience. Accepting crypto enables a business to reach a broader range of customers and demonstrate its ability to innovate and progress as a company. Crypto is still a new commodity, making it the perfect time for businesses to adopt it.

Many traditional investors have chosen to invest in cryptocurrency. The digital currency has many benefits for individuals looking to invest in something other than a conventional stock. Crypto has been making a huge impact all over the world. Some individuals say that it has the potential to take over the world the way the internet did in the nineties.

Cryptocurrency cannot be controlled by a government entity, which draws many investors to buy tokens of their own. Currency that the government issues, also known as fiat money, has the potential to depreciate over time, but cryptocurrency does not. Due to most cryptocurrencies having a limited supply, no governmental agency can lower its value through inflation. In addition, the government can't tax or take crypto tokens without permission.

Cryptocurrency has the potential to continue to become a mainstream form of currency in the near future. As it grows in value and popularity, the benefit of investing in crypto becomes more apparent. Whether you have been investing for years, or have just begun looking into buying crypto, investing can be made easy with Pelicoin.

- **Investing in Cryptocurrency with Pelicoin Bitcoin ATMs**

The overall positive economic impact of cryptocurrency proves that investing in cryptocurrency can be a beneficial investment. Worldwide, the total number of Bitcoin ATMs has reached 8,000 for the first time in June 2020. They are located in around 90 countries and the U.S. has more than half of them.

In the Gulf South of the U.S., Pelicoin offers the largest and safest cryptocurrency ATM network. By starting with as little as \$20, you can choose and manage your Bitcoin, Litecoin, and Ethereum assets by visiting one of our machines. For helpful advice, guidance, and news about cryptocurrency, visit our blog or talk to us today by emailing [support@pelicoin.com](mailto:support@pelicoin.com) or calling 855-PELICOIN. We look forward to assisting you on your journey into the world of cryptocurrency!

## 9. Conclusion

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For Paul Domjan, former global head of research, analytics, and data at investment bank Tellimer (formerly Exotix), emerging nations are the most promising beneficiaries of blockchain tech. He argues that, because "frontier markets in Latin America, Sub-Saharan Africa, and South Asia lag far behind [in the area of ownership recording], with average performance less than half that of the best-performing economies," they are primed for the benefits of blockchain.

Amnesty International program director Mark Dummett has voiced cautious support for the integration of blockchain into efforts to address these and other problems plaguing developing nations, saying, "You have to be wary of technological solutions to problems that are also political and economic, but blockchain may help. We're not against it."

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