TrainChain
Blockchain Training for Start Ups

PR1-T3 Core Content

Module 1 - Cryptocurrencies/ Payment Gateways

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1	2021-1-IE01-KA220-VET-000032943		TrainChain Agreement
2			

APPLICABLE DOCUMENTS

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1			
2			

1. Contents

1. Introduction

1.1. Cryptocurrencies and Payment Gateways. Module Description

In this module you will learn about the Cryptocurrencies and Payment Gateways, and is formatted as follows:

1. What the cryptocurrencies are, their origin and current situation,
2. The types of cryptocurrencies exist,
3. What are the digital wallets and how to open them?
4. What is a cryptocurrencies payment gateway?
5. How to buy, create and invest in cryptocurrencies,
6. Advantages and threats of using the cryptocurrencies in your business,
7. Real life examples with details that the user can get inspiration from,
8. Proposed resources (where do I go from here).

1.2. Module Goals

1. Learn and understand what the cryptocurrencies are and how they work,
2. Review current situation of technology use,
3. Recognize the opportunities,
4. Identify and recognize the main advantages and threats through theory and real-life examples,
5. Identify and estimate possibilities that cryptocurrencies can bring,
6. Learn about cryptocurrencies fast-growing ecosystem,
7. Refer the reader to further sources of information.

1.3.   Learning Objectives

Make users aware of the enormous advantages of technology and inspire them to learn more, comprehend, build, and implement solutions that will allow them to first survive, then outperform unethical or unlawful competition.

1. Raise awareness of the advantages of technology like cryptocurrencies,

2. Highlight the lessons learned from earlier case studies,

3. Promote use of technology.

1.4.   Learning Outcomes

After this module the user will be able to

Make users aware of the enormous advantages of technology and inspire them to learn more, comprehend, build, and implement solutions that will allow them to first survive, then outperform unethical or unlawful competition.

1. To recognize the benefits of presented solutions and how they integrate into their business and life,

2. To be able to conduct analysis and create a plan for putting a solution into action in their setting,

3. To be up to date and be capable of assessing the possibilities of new trends in this field,

4. To be able to assess the existing opportunities.

2. Main Content

2.1. General overview of Cryptocurrencies

A cryptocurrency is a digital asset that is used for economic transactions. Cryptocurrencies are a type of digital currency that uses cryptographic methods to ensure the ownership and security of financial exchanges, control the creation of additional units and verify the transfer of these assets.

Nowadays, they represent a decentralised alternative to conventional currencies and banknotes, i.e., these currencies are not controlled by a single company, as happens with traditional currencies, which, unlike cryptocurrencies, are centralised through institutions such as banks or entities or third-party intermediaries.

In contrast to the traditional system, cryptocurrencies are operated and controlled through a decentralised database, known as blockchain. This technology connects different devices to each other, regardless of their location, thus excluding the need for a central server.
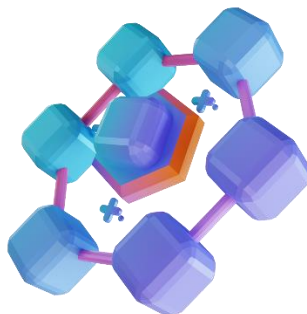
With blockchain, the secure transfer of data, such as buying and selling, is structured through sophisticated encryption and encoding in the form of 'blocks' of information storage. Once they have completed their storage level, these blocks are closed and linked to the next block, forming chains of information verified by a peer-to-peer network.

As the US Sentencing Commission's Bitcoin Glossary states, Peer-to-Peer Network (P2P) is a network that refers to systems that work like an organised collective by allowing each individual to interact directly with the others. In other words, all the elements of this network behave as clients and servers at the same time. This type of network allows a direct exchange of information between the connected computers as shown in Illustration 1.

Illustration 1: Peer-to-Peer Network

Regarding storage, whenever an individual acquires a cryptocurrency, he or she must store it in a digital wallet. This type of wallet is a mobile application that collects financial transactions, as well as payment information and passwords in a virtual, compact and secure form. These wallets use technologies such as QR codes, Near Field Communication (NFC) or Magnetic Secure Transmissions (MST) systems, and there are different types of wallets depending on the security of their private keys. These include exchange applications, online wallets, software wallets, hardware wallets, etc. Some of the most well-known are: Cash App, ApplePay, Google Wallet, PayPal, among many others.
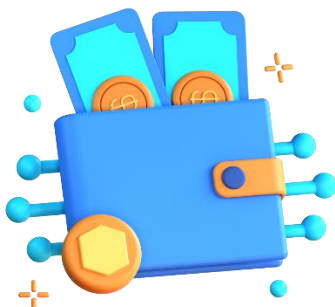
Additionally, there are different types of cryptocurrencies, the most popular being Bitcoin. Today, there are thousands of different cryptocurrencies on the market, e.g. Ethereum, Dogecoin, Cardano, Ripple, etc. Once we are familiar with these concepts, it is important to understand how the cryptocurrency transaction process works. As Nakamoto (2008) points out, "each owner transfers the coin to the next by digitally signing a hash of the previous transaction and the public key of the next owner and adding these to the end of the coin", a process displayed in Illustration 2.
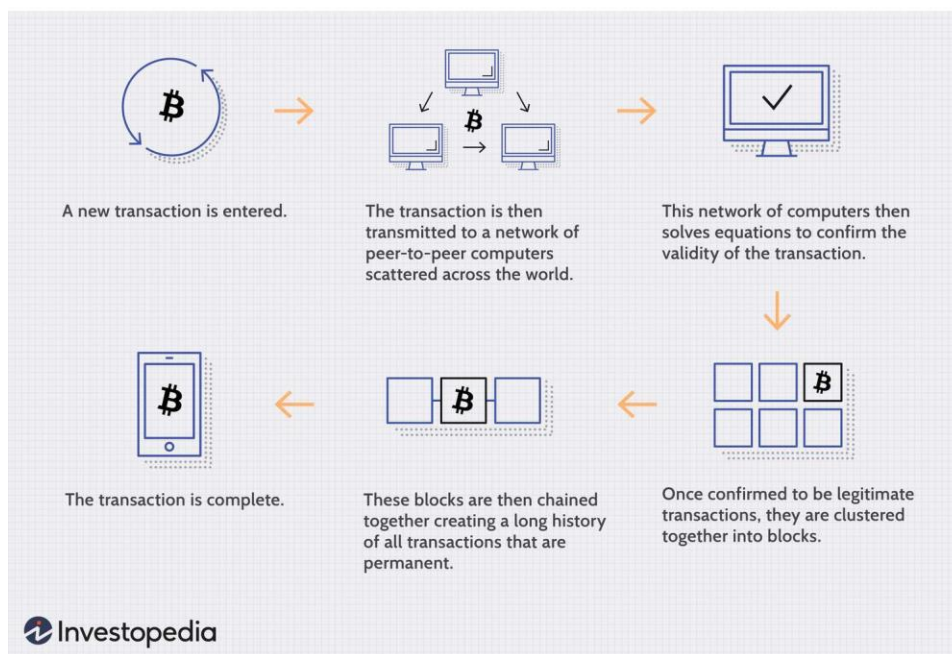

Illustration 2: Transaction Process. Source: ©Investopedia

Therefore, the security of the cryptocurrency is guaranteed, which is one of the greatest advantages of this asset. However, cryptocurrencies have many advantages and disadvantages, as shown in the following table (Bunjaku et al., 2017):

ADVANTAGES	DISADVANTAGES
Open code for mining crypto currency	Strong volatility
No inflation	Large risks of médium and long term investing
Peer-to-peer cryptocurrency network	
Unlimited possibilities of transaction	
No boundaries	
Low BCT operation cost	
Decentralization	
Easy to use	
Anonymity	
Transparency	
Speed of transaction	
It belongs only to the wallet owner	
No chances to use some personal data for fraud	
Investing in profitable resources	

Table 1: Cryptocurrencies advantages & disadvantages

2.2. History of cryptocurrencies

Despite appearing to be a relatively new concept, cryptocurrencies have been around for a long time. In 1983, US cryptographer David Chaum devised an electronic cryptographic monetary system called eCash. In 1995, he implemented DigiCash, a system that used cryptography to transform anonymous money transactions.

However, the notion or concept of cryptocurrency was first described in detail by Wei Dai in 1998, when he proposed the idea of creating a new form of decentralised money using cryptography as a means of control. He presented this concept under the name *b-money*, taking the first steps towards what we know today as blockchain.
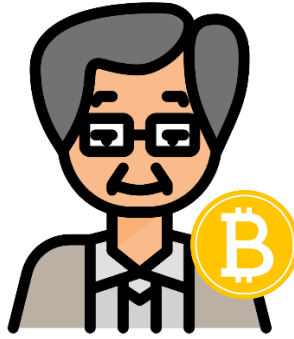
Subsequently, ten years later, in 2008, Satoshi Nakamoto, whose identity was still unknown and completely anonymous, introduced the first and main digital currency: the Bitcoin (BCT).

In the white paper published on the Mtezdow platform, Nakamoto explained how this peer-to-peer (P2P) currency worked anonymously and by means of a consensus algorithm called proof-of-work,(PoW), a mechanism through which the cryptocurrency transaction is verified and added to the block chain.

Originally this idea did not gain the expected support, although it nevertheless went ahead, giving rise to the birth of "Genesis", the first decentralised and P2P Bitcoin block, allowing anyone to participate in its mining, i.e. in the process of validating transactions in the blockchain database.

Since its inception, cryptocurrencies have gradually gained the attention of the general public and, above all, the media. Since 2013 in particular, interest in Bitcoin currencies has risen sharply to the present day, as can be appreciated in Illustration 3 below.

Bitcoin (BTC) price per day from October 2013 to October 20, 2022 (in U.S. dollars)
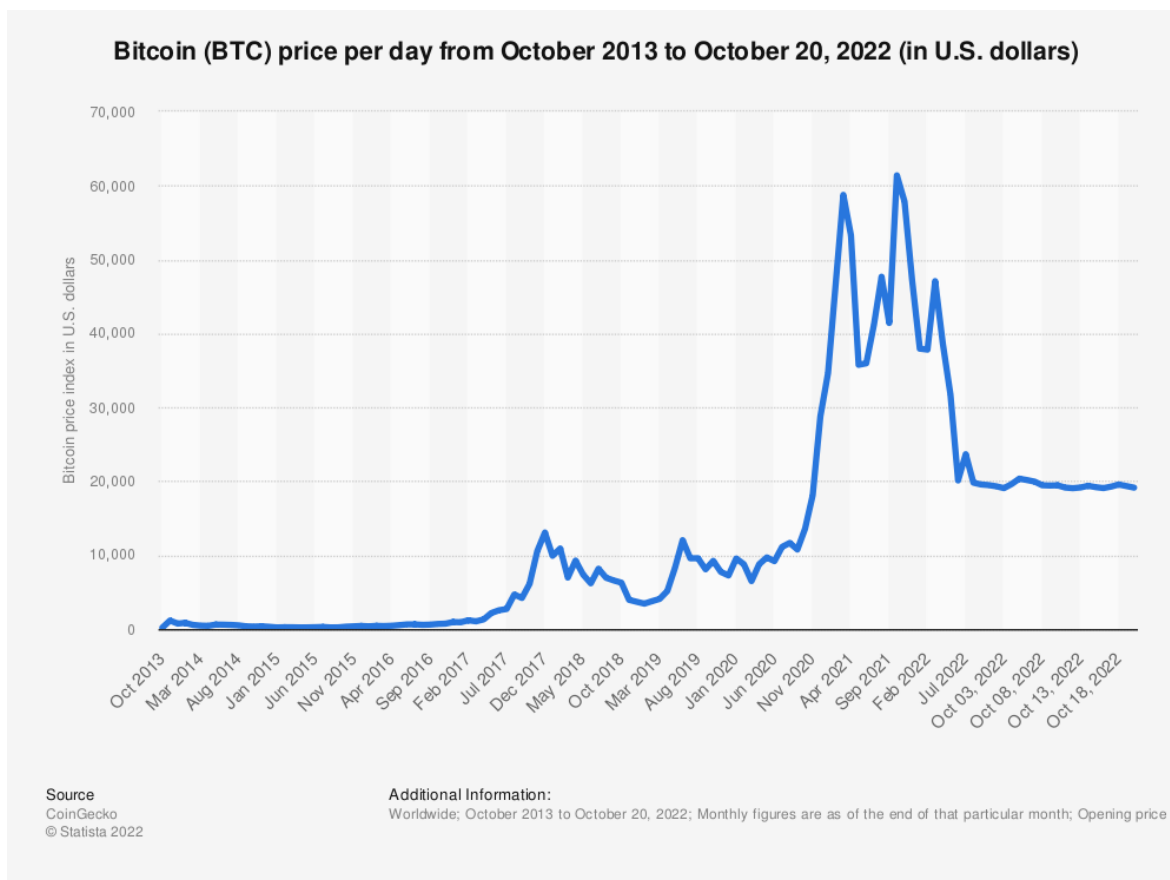
Illustration 3: Bitcoin price evolution (2013 - 2022) Source: © Statista 2022

But this rapid development has led to growing national and even global concern about its regulation, since, as an innovative and newly created concept, it created a legal vacuum in the global economy.

Today, it has been demonstrated that blockchain technology can drastically disrupt financial markets and assets, especially in terms of their creation, storage, access and exchange (Eyal, 2017).

With the emergence of financial technology (Fin Tech) and decentralised finance (DeFi), many markets have introduced regulatory measures in their economies.
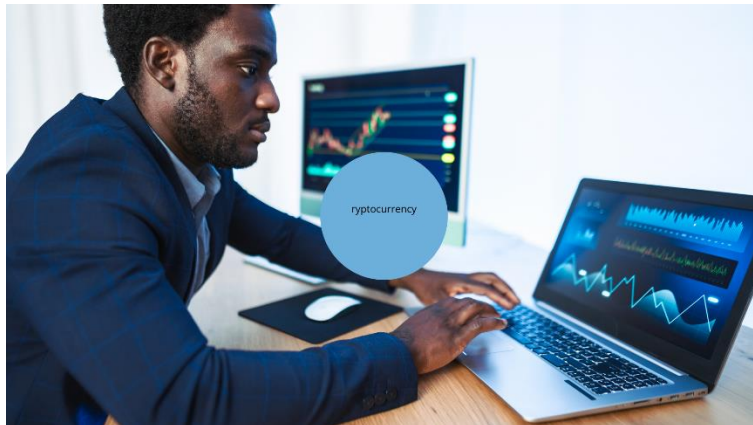
Therefore, on 24 September 2020, the European Commission presented the MiCa proposal, a regulation on the Markets in Crypto Assets, with the aim of establishing a digital finance package that would regulate the European economy and provide legal certainty for cryptocurrencies.

This regulatory framework for financial services in the EU has been settled on 5 October 2022 and is expected to be published in early 2023.

This law, which contains more than 100 articles (already available for consultation on the website of the European Council), provides the establishment of a register of licensed exchanges to offer such services, as well as the creation of a uniform European crypto asset database of over 450 million citizens.

However, its regulation is not in line with the nature of the dynamics of these cryptocurrencies, so these legislative, technical and social developments will have a significant impact on the cryptocurrency market.

For this reason, authors such as ElBahrawy et al. (2017) believe that this increase in market capitalisation will lead to a greater number of speculators, and consequently, an increase in their usage and diversification, which will imply a situation in which a single cryptocurrency will seek supremacy in society.

Some other authors are in the same line of thought, proposing the use of a national or global currency, in support of greater globalisation.

As can be observed, cryptocurrencies have a lot of potential to fundamentally change the economy. However, there is still a lot of speculation around them and the industry continues to grow, creating more and more cryptocurrencies every day. Currently, in 2022, there are more than 20,000 different cryptocurrencies, a number that will continue to grow in line with the different national and international regulations.

2.3. Different types of cryptocurrencies

As we explained above, digital assets have a long history behind and with the passage of time, cryptocurrencies have been created which have had a great impact on the economic world and especially on investment. The trust of millions of investors has increased over time and more and more people deposit their money in digital currencies. We proceed to explain those that today have more resonance.

2.3.1 Bitcoin (BTC)

With this coin the most important, novel, and controversial concept of cryptocurrencies

was born, decentralisation. Until the day they appeared, all our money was under the control of banking institutions. Instead, cryptocurrencies allow us to make a transaction without third parties, which presents us with a tremendous sense of freedom.

This coin was born with open source and a P2P network as we have already mentioned. Because of this, its design is public, no one owns or controls it, and we can all have a stake in it. Like any investment element, bitcoin has risks. With the birth of BTC, many illegal businesses were also born, in which drugs or weapons were sold and paid for with cryptocurrencies, allowing buyers to remain anonymous. As a matter of fact, any transaction is registered, the opposite of what happens when we buy with fiat money.

Like many other currencies, bitcoin has a finite supply and a cap on how many can be created. This limitation adds value because eventually you won't be able to purchase any more. After 21 million BTC have been generated, no more can be produced at this time.

2.3.2 Ethereum (ETH)

Bitcoin is the largest and oldest blockchain network, but the leader in transaction volume is Ethereum, which was launched in 2015 by a team that included developers from the Bitcoin project.

It works as a platform that is based on *blockchain* technology and is open source. It's totally decentralised. This *blockchain* operates almost the same way as bitcoin; on the one hand, it also acts as transaction log, but on the other hand, users with knowledge of computer development can create decentralised applications that are called dapps **in** the Ethereum network, which are stored next to the transaction history on the *blockchain*. *Ethereum transactions* are approved by the PoW consensus method*,* but the launch of *ETH* 2.0 (O` Neal, 2020) is scheduled for this year, which aims to change the consensus algorithm to *proof-of-stake by giving* more security than *proof-of-work* and, in addition, as seen above, generating much less electricity expenditure.

While Bitcoin was conceived as an alternative currency to fiat currencies issued by governments, Ethereum was conceived as a platform for application development, a sort of operating system for the creation of applications that benefit from blockchain features such as immutability, openness and anonymity.

The Ethereum blockchain was developed with the flexibility to host more than just cryptocurrencies. In fact, the blockchain can contain executable programs that can interact with your native currency, Ether. This implemented program code is referred to within the blockchain community as smart contracts, although in reality, they are neither

contracts nor particularly smart. Ethereum has its own cryptocurrency, but it is not intended to replace euros or dollars. Ether exists primarily as a way to pay transaction processing fees on the Ethereum blockchain. That does not mean that Ether is a bad currency for investors. On the contrary, it plays a key role in applications based on the Ethereum blockchain, which are growing in number and handling a greater volume of transactions every day. As applications on the Ethereum platform become more important to more users, Ether tends to grow in value. Buying Ether coins is like investing in the dApps market.

DApps and Smart Contracts

Dapps (Hurtado, 2022) allow users to relate to each other without intermediaries through the blockchain since, as mentioned above, they do not belong to any entity. Just as an application like Facebook is hosted on central servers, a dapp runs on a network of thousands of nodes or computers. The latter makes these applications have a number of advantages over traditional ones: security since, even if one or more nodes fall, the app will not fall because there are other thousands of them to continue working; decentralization, as we have mentioned before; and they are free software, which allows for a large community behind their development.

Dapps are created in the backend from Smart Contracts groups (Bello, 2020) which run on your blockchain. These smart contracts are code scripts that facilitate the exchange of any element of value (money, shares, content...), eliminate intermediaries and therefore save costs to the consumer. Smart contracts are formed with the virtual machine EMV (Ethereum Virtual Machine), and when they are active in the blockchain act as a program running automatically, which makes the agreements of the contract in addition to being defined are fulfilled. They do this by executing the code associated with those clauses. For example, it can be
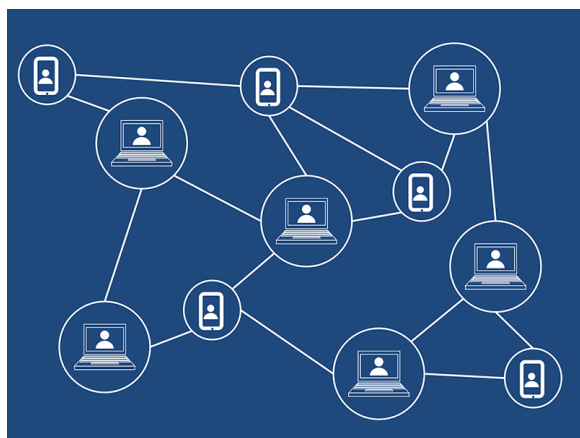
determined whether an asset should go to one person or another.

In addition, they cover transactions in a wide range of fields: insurance, financing agreements, financial derivatives...

Source: iStock

In conclusion, Ethereum is not exactly considered a cryptocurrency. The name itself refers to the platform, coins are called Ethers and are used for payments on the network. They are considered the cryptocurrency of the Ethereum network, and at the time of trading, all the quotes that will be seen are those of Ether.

2.3.3 Litecoin (LTC)

This cryptocurrency was created in 2011 as an alternative of Bitcoin (Rojas, 2019). It has crucial importance for its value in the market and also for what it has contributed to the network and *blockchain* technology. Its code is open and is in *GitHub*, where it is also explained that it uses *peer-to-peer* technology, and *that Litecoin Core* is the name of the *software* (also open source) which allows the use of this currency. In addition to Bitcoin, Litecoin makes clear in several official publications that it has also relied on other cryptocurrencies, particularly the failures of two of them which were already dead: *ixcoin* and *i0coin* were evaluated; and they also looked at the mining form of two others: *Tenebrix* and *Fairbrix* both use Scrypt's *proof of work system*.

Scrypt was born as an alternative to the bitcoin encryption system, the *SHA-256*, which consumed (and consumes) a lot of electrical energy. It is an algorithm that creates keys, but not only with the power of pure *hashing* as does *SHA-256*, but also requires *RAM* to

be able to solve the algorithms and be able to mine. It is true that this option demanded a lower amount of energy, but a greater amount of memory in the equipment with which they are mined. It must be made clear, that Litecoin never considered competing against Bitcoin, if not analyse its "failures" and improve them.

2.3.4 Cardano (ADA)

Cardano is the first *blockchain* considered scientific and third generation. BTC is the first generation and Ethereum the second. This is because it aims to support the second one to improve the platform and make smart *contracts more robust.* This technology uses as a consensus method a *proof-of-stake* variant called *Ouroboros* and is structured in two layers, which allow smart contracts to be more flexible and scalable for developers when it comes to design, privacy and execution mode:

- · CSL: acts as the ledger where transactions are validated by the method mentioned above, the issuance of rewards, and contains the main rules of the network.
- · CCL: this is responsible for storing all the information about what happens in the transactions. Its objective is to include additional functionalities, which do not affect the consensus algorithm in the first layer. This would allow Cardano to add consensus rules by which he could join other networks, for example, Ethereum's with smart contracts. In addition, these could target the virtual machines needed to be able to process them.

To increase Cardano's safety, *Ouroboros* employs a mathematical safety test, which is based on persistence and vitality. It is also programmed to issue a block every 20

seconds. With this, users get a level of security at the same level as Bitcoin, but with greater speed and operational capacity.

Cardano has an active token called ADA. His project aims to make this token reach first class and surpass the best in the market by allowing very secure and improved transactions and at the same time having very *powerful and scalable Smart* Contracts.

Cardano's project (Academy Bit2me,2020) was created by Charles Hoskinson, who had previously left Ethereum and is responsibility for three organisations: Cardano Foundation, created not for profit to support the project; *IOHK*, company focused on the development of innovations in the *blockchain* to create accessible financial services; and *Emurgo*, which develops and supports innovative business initiatives based on *blockchain* technology.

Ethereum and Cardano are not the only player in the field when it comes to blockchains for apps. Solana, Polkadot, Ergo and Algorand are a few of the blockchains that are available for trading smart contracts. Each offers competitive features that differentiate them from Ethereum. Some handle more transactions per second, some charge lower fees, some handle more complex transactions, and so on.

2.4. How to invest safely in cryptocurrencies?

Cryptocurrencies are a type of digital currency used for online transactions. Unlike fiat currencies such as the dollar or the euro, cryptocurrencies are not regulated by any government or central entity. This means that the supply of cryptocurrencies is fully controlled by the market and no authority can issue more coins or interfere with the price.

Cryptocurrencies are stored in a "digital wallet", which is similar to a bank account. These wallets are protected by a private key, which is what gives the wallet owner full control over their funds.

How to invest in cryptocurrencies?

To start investing in cryptocurrencies we need to follow a few steps that will help us avoid mistakes. Here is what needs to be done:

1.   Choose a broker or an exchange

We need to choose a broker to act as an intermediary between us and the market. We will need to fill in the registration form with our personal details and provide proof of residence, such as a utility bill. These aspects are necessary for customer profiling and customer protection.

2.   Establish an investment budget

Nowadays, investing in cryptocurrencies is within the reach of anyone, it only takes 50 euros to activate an account with some of the best regulated brokers. The most traditional deposit methods are bank transfer, credit card or PayPal. E-wallets such as Skrill or Neteller are also popular.
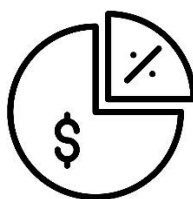
3.   Selecting the best cryptocurrencies

Now it is necessary to choose which cryptocurrencies we want to buy. Capitalization and blockchain technology are two of the main factors to consider when buying a cryptocurrency. We also suggest building a portfolio with at least 5 or 6 different tokens to better balance the investment risk.
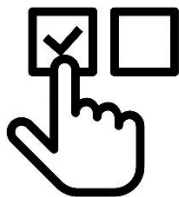
4.   Making the purchase of tokens

We need to download the platform, log in with our credentials and start investing in the cryptocurrencies we are interested in. To do this, we need to type the token in the search bar, determine the money to invest and whether we want to make an immediate purchase or place a pending order. After checking the information entered, all that remains is to click on "buy".
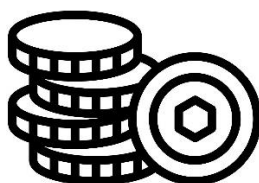
5.   Store the token in a wallet

Finally, all that remains is to store the token we have just purchased in a safe place. In this sense, we can choose between Hot Wallet and Cold Wallet, the two most commonly used methods. On the other hand, if we choose to buy cryptocurrencies with eToro, we can store the tokens directly in our account, without the need to use an external wallet and with total security.

Tips for investing safely in cryptocurrencies

There are many myths surrounding the acquisition and use of cryptocurrencies.

On the one hand, there is the idea that it makes people millionaires overnight, which only shows a fancy imagination of it all, but in reality, can cause disappointment.

On the other hand, there is the belief that it is a scam. In reality, cryptocurrencies have proven to be a reliable medium of exchange, the use of which will be inevitable in the future.

Follow these tips on how to invest safely in cryptocurrencies:

1. Be realistic with your budget. Honestly ask yourself, how much money do I have available to invest? If it's not too much, it doesn't matter! Start with what you can afford.
2. Don't invest in cryptocurrency offerings if you don't find their programming terms convincing.
3. Use reliable applications: mainly a good online wallet or, if you prefer offline, a USB stick.
4. There are several investment portals, also known as "brokers", where you can learn by using the free investment demos they offer.
5. If you are just starting to develop your investment skills, it is not recommended that you borrow money from trading sites. Incidentally, this type of action is known as "leverage".
6. Study cryptocurrency trading flow charts. For example, if you see that a security is constantly going up and down, this is a pattern that you could profit from.
7. Copy the moves of experienced and important investors. You can approach them by participating in networks that capture and publish the movements. Some are open (Twitter) and in others you have to pay a membership fee.

The case of bitcoin

Bitcoin is a virtual currency or medium of electronic exchange that can be used to purchase products and services like any other currency. This currency is decentralized, i.e., there is no authority or control body responsible for issuing it and registering its

movements. It mainly consists of a cryptographic key that is associated with a virtual wallet, which deducts and receives payments. As we know, the value of cryptocurrencies is very volatile, and in a matter of minutes, it can reach an all-time high or drop to an all-time low. It is precisely these fluctuations that many investors take advantage of to make as much profit as possible. However, for some years now, the success of bitcoins and their establishment in society in general has meant that they are no longer just an asset for investment, but have also become a secure payment alternative for acquiring goods and services.

This change is due to the success of bitcoin in society worldwide, which is also reflected in the growing number of companies in various sectors that accept bitcoin payments.

The leap that bitcoin takes from being an asset to becoming a payment alternative and being implemented in companies occurred in 2014, when the developer of games for social networks, Zynga, took a step forward and became the first company to accept bitcoin. In 2015, the acceptance of bitcoin took a new turn and it was a banking institution, Barclays, which became the first bank in the United Kingdom to accept bitcoins.

Not only large companies, but also SMEs and even government agencies are already working with cryptocurrencies and blockchain. For example:

- In the area of web services, Shopify, an ecommerce platform that offers its users the possibility of accepting cryptocurrency payments in their online shops.

- In the area of software and technology, Microsoft was one of the first major companies to implement bitcoin as a payment method.

- In the food area, Subway supports bitcoin payments.

- In the financial area, JP Morgan is the first US bank to create its own digital currency, the JPM Coin. Goldman Sachs, Wall Street's flagship merchant bank, is also backing bitcoin, and MasterCard, a company that facilitates electronic transfers worldwide, has made it possible for its users to top up their cards with cryptocurrencies, which can then be used anywhere in the world.

- In the area of gaming and gambling, PlayStation Network does not support bitcoin payments directly on its website. It does so via a virtual gift card that can then be redeemed on the PlayStation Network for the purchase of any product using bitcoin.

- In the area of solidarity, Greenpeace accepts bitcoin donations via Bitpay. Wikipedia also accepts bitcoin donations via Bitpay and UNICEF has a cryptocurrency fund where it collects donations of these virtual currencies.

2.5. How many types of digital wallets exist?

What is a Digital Wallet?

A digital wallet stands for a software, an electronic device, or an online service that enables individuals or businesses to make transactions electronically. It reserves the payment data of users for different payment modes on different websites, along with

other items such as gift coupons and driver's licenses. A digital wallet may be called as an e-wallet.

Generally, the digital wallet takes the form of a smartphone app, but it can also exist in other forms, such as desktop. However, the mobile app is the most popular version of the digital wallet, due to its mobility and flexibility-

Digital wallets are not only convenient to use in certain cases, but they are also more secure than traditional wallets. Users of digital wallets have to download specific applications created by banks or trusted third parties in order to use the service.

Significance of a Digital Wallet

- A digital wallet securely **stores all the payment information** of users in a compact form. Thus, it greatly reduces the need to carry physical wallets.
- Companies that need to collect **consumer data for their marketing needs** can benefit greatly from digital wallets. They get to know the purchasing habits of consumers and increase the effectiveness of the **marketing methods** of their products. However, it leads to a loss of privacy for consumers.
- Many developing countries using digital wallets may be able to increase their participation in **the global financial market.**
- Digital wallets allow users to **transfer funds** to friends and family residing in different nations.
- Moreover, digital wallets eliminate the need for physical banks and companies in order to open and maintain a **bank account**. Hence, they also connect individuals and businesses in rural areas.
- A digital wallet is required to make **transactions and maintain balances** of cryptocurrencies.

Unlike a physical money wallet, what is stored in e-wallets are the **keys** that give us ownership and rights to the cryptocurrencies and allow us to operate with them. Therefore, the loss or theft of the keys can mean the loss of the cryptocurrencies without the possibility of recovering them – **SANTANDER BANK**

In fact, there are so many different portfolios on the market. Fortunately, it is possible to list the different types into two distinct categories: hot wallets and cold wallets. What differentiates them is that a hot wallet will be directly connected to the Internet during its use while a cold wallet will not. This attribute allows the cold wallet to offer maximum security by considerably reducing the attack surface for the hacker. Therefore, it is recommended to use a cold wallet to store large amounts of cryptocurrency.

Hot ewallets	**Cold ewallets**
A hot wallet is connected to the internet and could be vulnerable to online attacks	**A cold wallet is not collected to the internet**

Now, should you use hot wallets, cold wallets, or a combination? Read on to learn more about the pros and cons of each of them:

Easy to use

There are always online, there's no need to transition between offline and online to make a cryptocurrency transaction

Free

Hot wallets are usually free

Keep less money

You cannot keep significant amount of money in hot money. If you're storing significant amount of cryptocurrency online, be sure to research the reputation of the exchange you're using

More secure

Stealing from a cold wallet usually would require physical possession of or access to the cold wallet, as well as any associated PINs passwords

Connected to internet

Must be powered on and then connected to the internet.

You have to pay

Usually, can cost you between $50 and $200.

Within the hot wallet we can find:

-    Web Wallets

These wallets are ideal for simple investments and quick transfer of crypto funds. Internet browsers easily access them, and users are provided with private keys. Web wallets allow the user to manage and control various cryptocurrencies at the same time. The main problem of this wallet is that they are exposed to DDoS attacks and are the least secure wallets.

-    Mobile Wallets

These are wallets that can be downloaded and installed on mobile devices, therefore the name Mobile Wallet. These wallets provide features wherein users can scan QR codes and make payments.

- Desktop Wallets

Desktop wallets appear in the form of software packs that users store on their personal computers and laptops. To strengthen the security of these wallets, experts require anti-virus features when installing and using desktop wallets. Desktop wallets are anonymous, private, convenient to use, and do not require a third party. These wallets are recognized as the third most secure way to manage cryptocurrencies.

Within cold wallets there are:

- Hardware Wallets

Hardware wallets are devices whose specificity is to generate and store private keys in isolation and to allow signing off-line transactions. It is today the safest solution to hold cryptocurrency. These wallets can be connected to PC and laptops and are not battery operated.

- Paper Wallets

Paper wallets are the simplest wallets you can imagine they consist of a private key and its corresponding address printed on a sheet of paper. Note that the secret information can also be a mnemonic phrase. For a paper wallet to truly represent cold storage, it must have been generated by a machine that has no contact with the Internet, such as an old computer that is no longer used.

Examples of Digital Wallets

1. PayPal One Touch™

The PayPal One Touch™ application is an extension of the usual services offered by PayPal. It allows users to make payments or fund transfers faster by letting them to skip the login screen and delete put passwords. The PayPal mobile wallet app can also run on a desktop, laptop, or tablet.

2. Apple Pay

The Apple Pay digital app is available exclusively for Apple-branded users such as iPhones, iPads, and Apple watches. Users can make transactions not only online but also by attending a physical store.

3. Google Pay

The Google Pay app let users to make transactions in an app or on any website using either a debit or credit card. The information is saved in each one Google platform such as Google Account, Google Play, Chrome, YouTube, Android phones and watches.

How to open a Cryptocurrency Wallet

As you already have imagined, to use cryptocurrencies, you actually need to have a cryptocurrency wallet. As opposed to a normal "pocket wallet", your money is not stored inside a cryptocurrency wallet, but your money is stored on the "blockchain" (that secure peer-to-peer network we mentioned earlier). Your wallet contains a set of keys that allow you to send and receive coins. It also keeps track of all the transactions you make. But how can you open a Cryptocurrency Wallet? There are many websites and apps to create an ewallet but the procedure is similar to each one.

STEP ONE: Download the app

- Download the e-wallet applications, the most popular options being Coinbase Wallet and MetaMask.

STEP TWO: Create an account

- Enter your email address and some private information

STEP THREE: Remember your private key

- A unique private key will be generated. Make sure you take note of it (and make backups) and don't share it anywhere since it will compromise your account if you do. <u>There is no way to recover this private key if you lose it so be careful.</u>

STEP FOUR: Transfer your crypto to the wallet

- Once you're inside the wallet you will see your current balance and your public key address. This is the one you can share with other users to get paid to this wallet (and the one you'll have to add in the Microwork app to receive your earnings).

STEP ONE: Download the app

STEP TWO: Create an account

STEP THREE: Remember your private key

STEP FOUR: Transfer your crypto to the wallet
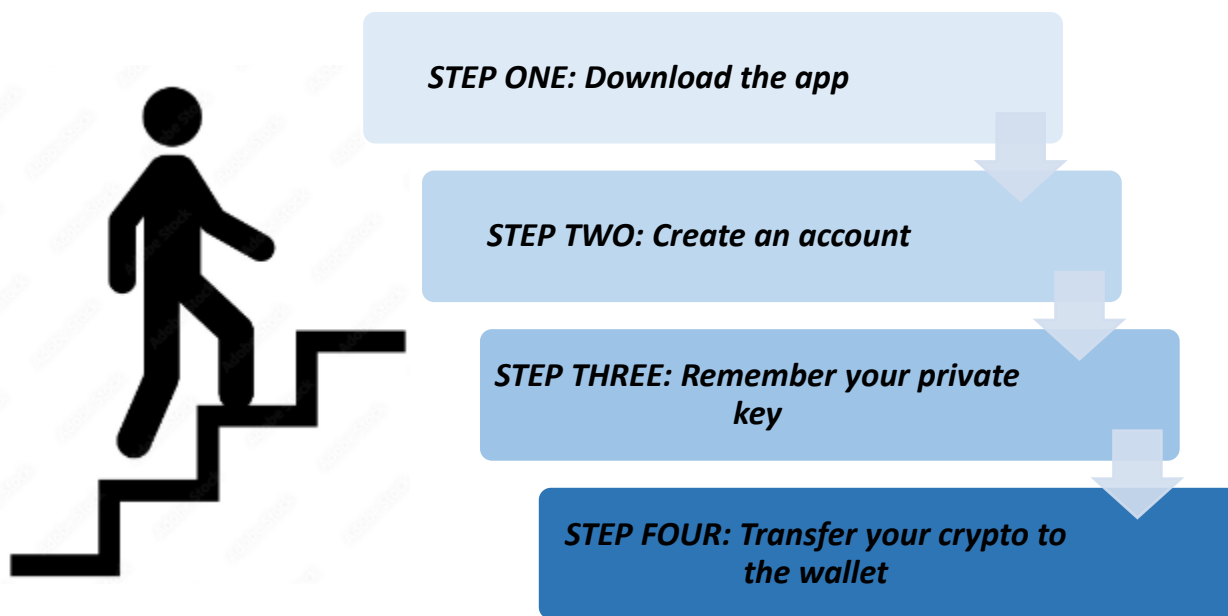
Best Bitcoin Wallets for 2022

1. Exodus

Exodus offers cryptocurrency exchange services across all gadgets, including desktop, mobile, and hardware crypto wallets. Its features include live charts and portfolio data, 24/7 customer support, a built-in exchange, and more than 150 cryptocurrency assets.

2. Electrum

Electrum is a type of hot wallet that encrypts your crypto's online. It functions by verifying all your bitcoin transactions are in the bitcoin blockchain and leverages its Multisig feature to allow you to spend bitcoin between multiple wallets. In addition, Electrum offers several interfaces that you can use on mobile, desktop, or its command-line interface.

3. Mycelium

Mycelium is a free bitcoin wallet that offers a broad range of bitcoin storage services such as advanced cold storage, spending and savings accounts for bitcoin investors, and inter-wallet operability.

4. Ledger

Launched in 2014; known as one of the best hardware wallets.

5. Trezor

Trezor is a cold wallet for bitcoin that offers offline storage through an external USB-like device.

6. MetaMask

Metamask is designed to be accessible as a browser extension and as a mobile app.

7. Trust Wallet

Trust Wallet is a mobile-only digital wallet that lets you store, purchase, and exchange bitcoin and other cryptocurrencies. The wallet is available for iOS and Android devices.

8. Blockchain.com wallet

Blockchain.com's bitcoin wallet offers online encryption and gives you complete custody over your bitcoin holdings. Its best features perhaps include crypto data charts, interest-bearing accounts, and real-time crypto prices.

2.6. What Is a Cryptocurrency Payment Gateway?

A cryptocurrency payment gateway is a payment processor for digital currencies, similar to payment processors, payment gateways and bank credit card purchases. Cryptocurrency gateways allow you to accept digital payments and receive fiat money in return.

These companies remove any hesitation or reservations you may have with cryptocurrencies and allow you to offer more payment options.

It is important to note that digital payment gateways are not required. It is perfectly acceptable to use your personal wallet to accept cryptocurrency payments; however, gateways take on the additional work of exchanging cryptocurrencies and managing a wallet.

How does a cryptocurrency payment gateway work?

Payment gateways are companies that take on the perceived risk of cryptocurrency payments by using their wallet(s) to facilitate transactions between merchants and their customers.

<u>Payment flow</u>

In terms of steps, the following workflow is executed:

1. Your customer chooses to make the cryptocurrency payment at checkout (in-store, on the web or in the app).
2. You are paid an amount equal to the fair market value of the digital currency at the time of the transaction.
3. The cryptocurrency payment service instantly converts your payment into the currency of your choice.
4. The money is added to your account at the provider; it is deposited into your designated bank account at intervals set out in your service contract.

The process is transparent to you because you don't have to worry about cryptocurrencies; only your cryptocurrency service provider will place the appropriate funds into your account.

Be sure to check the cryptocurrency regulations in your country before creating a gateway account. These gateways can operate anywhere in the world and many countries are developing new laws on the use of digital currency.
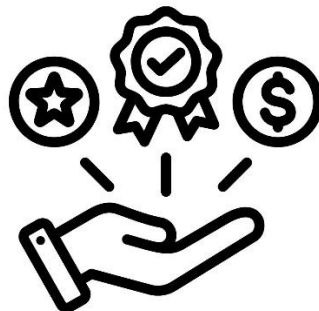
Advantages and disadvantages of payment gateways

By its nature, cryptocurrency is designed to be decentralized and anonymous. The system facilitates a two-party exchange. However, some merchants may not be comfortable accepting digital currency payments; they may not understand how any of them work or may be skeptical about the system.

For these reasons, it is important to understand the advantages and disadvantages of payment gateways so that you can decide how you want to accept digital payments.

Benefits

- A payment gateway removes the anonymity of the person you are dealing with, maintaining the customer's preference for it.

- You must contact someone if there are any problems with the payment.

- You can accept payments from anywhere in the world, in any cryptocurrency your provider accepts.

- You receive the funds in your supplier's account, who transfers them to you.

- You don't have to worry about or try to understand the cryptocurrency.

- Reduce the risk of volatility, the risk of losing value while waiting for the cryptocurrency network to verify a transaction, by paying your market rate for tokens at the time of the transaction.

Disadvantages

- A payment gateway is a third party, which cryptocurrencies were originally designed to bypass.

- You must rely on your provider's ability to maintain uninterrupted service, as you can receive payments from all over the world and in different time zones.

- Gateways are companies that provide a service, so they will promote themselves in a way that makes it appear that you need their services when, realistically, you do not.

- You pay small transaction fees when you use your wallet with cryptocurrencies; you pay more when you use a payment gateway for cryptocurrencies.

- If the payment gateway is hacked, you will lose all the funds you have in your account with the provider while waiting for them to transfer.
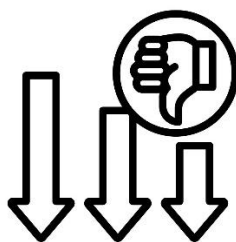
Some payment gateways that can be used are the following:

- PayRetailers

The number of payment methods supported by the platform is quite extensive. Customers can pay using traditional and alternative payment systems, as well as wallets, QR codes and bank transfers. The integration of numerous acquirers is not necessary, as all payment methods are collected on a single platform.

Around 250 payment methods work through a seamless API integration that allows international companies to trade with Latin American businesses and increase their revenues in this way.

PayRetailers allows merchants to accept payments, settle funds and send payments to any corner of the world. Traditional card payment methods include VISA, MasterCard, American Express, Visa Electron, Visa Debit, MasterCard Debit, Webpay plus, Tarjeta Naranja, Elo and Hypercard. Alternative payment methods include BCI Bank Transfer, Scotiabank Bank Transfer, BBVA Bank Transfer, Santander, and many others. The platform is active in the North, South and Central American markets.

The system can be easily integrated with Magento, WooCommerce and Praxis Cashier. Merchants have the opportunity to improve their image and build a strong customer base.

- Coingate

Provides cryptocurrency payment processing services to businesses large and small, both online and offline. It is a globally recognized payment processor that accepts payments in a variety of over 50 cryptocurrencies.

Advantages	Disadvantages
As an alternative for processing payments, a mobile application is available for iOS and Android.	There is no CoinGate wallet available.
It has a web application that you can use as a point of sale.	No cryptocurrency or fiat money can be deposited. All purchases and sales of cryptocurrencies must be made from external wallets.
If you have a website or e-commerce, you can implement	The platform is account-only.

a button that allows users to make payments with bitcoin.	
Set the prices of your products in local currency and the gateway will do the conversion to the digital currency.	Does not operate in all countries.
You can customize your billing services.	
The payment processing fee is 1%.	

- Bitpay

It is one of the world's first Bitcoin payment gateway providers. It specializes in Soft Touch POS systems and, unlike other payment processors, only works with bitcoin, bitcoin cash and fiat currency.

Advantages	Disadvantages
It has an API thatt can be integrated into the traditional point of sale.	The number of cryptocurrencies with which it operates is limited.
It has BitPay Checkout, the mobile tool available for iOS and Android, which allows you to use your mobile phone as a point of sale.	

It has a web option, called Quick Checkout, which you can use with any device.	
It specialises in SoftTouch systems (touch point of sale, ideal for cafes and restaurants).	
You can integrate the Bitpay gateway with your e-commerce through an API for online purchases with a button.	
Available in 229 countries.	
Low commissions, only 1% of the total amount paid in bitcoin.	

- GoCoin

A company that started in 2013 and to date has become one of the leading payment gateways, operating major cryptos such as bitcoin, bitcoincash, dash, litecoin, ethereum and eos.

Advantages	Disadvantages
Integration with e-commerce providers, such as Shopify.	It operates with a limited number of cryptocurrencies.
Allows you to run website redirection or iframe options to insert web functionalities.	
Allows for returns or refunds on invoices that do not exceed 90 days.	

Flexible payment policies.	
Easy and fast processing.	
1% commission charged once the transaction is closed as successful	

2.7. How to buy, create and invest in cryptocurrencies

The creation of a digital currency (Sánchez, 2021) is a complex development, which requires knowledge of computer science and cryptography. Many people are interested in the process of creating cryptocurrencies, either out of curiosity or because they want to create their own. Nowadays, anyone can create a digital asset and launch it on the market in a matter of minutes thanks to the many options that exist on the internet. Because of this, we see that there are multiple varieties of them, and each project has its own qualities and objectives. Not all cryptocurrencies have been created to do the same function or to have the same objectives for the future, some are more revolutionary than others, but they are all based on blockchain technology.

Steps for the creation of a cryptocurrency

As a first step (Maldonado, 2020) you have to know what your project offers, and be clear about the concepts, vision and objectives it has. This is very important to take the right path to the currency since the more you explain what it will consist of and the more forward-thinking it has, people will show interest in it and therefore a community will be created around them, which increases confidence in cryptocurrencies.

Secondly, we must have an important team of people who support the creation of it and who can contribute to its maintenance.


Options for creation

In the third step, we have three options for the creation of our currency (ibid.)

The first is to do it through a web platform, which allows you to create your *own blockchain* and help us to make the currency fully operational in a matter of minutes. One drawback to this choice is the number of limitations they have in terms of options and capabilities.

As a second way to create our cryptocurrency, there is to create a *token* that works on another *blockchain* already established. The main difference between a *token* (Pombo, 2021) and a cryptocurrency is that the first is launched by a private organisation and relies on a *blockchain not of* its own to work. *Tokens* are used for tasks (C. Telegraph, 2020) in which we cannot use cryptocurrencies and can have different functions, depending on the entity issuing them and the use they want to give it. For example, within an app, they can be used to buy and sell services. If we choose this option, it will be technically more complex than the first.
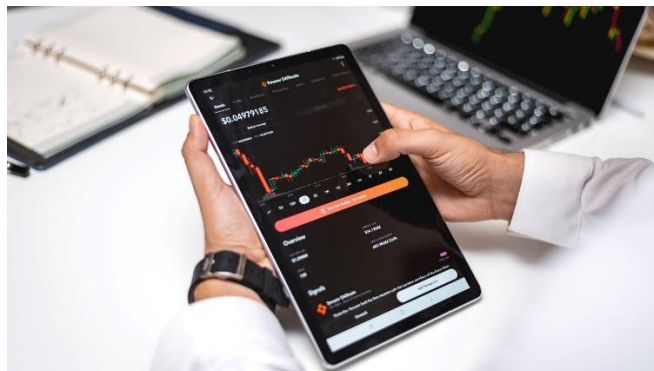
Finally, we could also create the coin from scratch or based on the code of an already created one. Almost all of them are free *software*, therefore, you should only choose one of them, and modify it to adapt it to our objectives and add our preferences. This is the most powerful path, and the best results will give us when it comes to creating our cryptocurrency.

<u>Distribution of created coin.</u>

For the currency to be distributed (Maldonado, 2020) it must enter *an exchange app*, which is dedicated to the sale and purchase of cryptocurrencies making in exchange for *fiat* money. Normally, these platforms only list currencies that meet certain criteria, for example, that have a minimum number of users, have a certain minimum time in operation, that meet a value in the appropriate market...

To conclude, anyone with or without knowledge of crypto can create their own cryptocurrency and launch it to the market, openly exposing the values and goals she suggests.

<u>The Burger King Case</u>

The fast food chain has created its own token on the Waves blockchain, Whoppercoin, for its iconic Whopper burger. It has been created by Burger King Moscow and the intention is to reward customers who order a Whopper by rewarding them with Whoppercoin that can be exchanged for other products. They also announced that they would start accepting bitcoin payments. In fact, the German branch already accepts bitcoin as payment for online orders. Although it is not yet implemented in all branches, the intention is to do so in the not-too-distant future

Illustration 4: Source: El target, 2017

Mining and consensus algorithms

Cryptocurrency mining (Criptonews website) can be defined as the process by which transactions from a network are validated and grouped into a block, then added to *the blockchain*, providing network security and generating new currencies. Therefore, the result of being the miner chosen to place that new block in the chain will give this a reward that consists of a commission of the currency that is being generated.

But in order for these operations to be recorded and can be added by a single miner, they must have been approved by the rest of the network's participants (nodes), that is, there must be a consensus. Consensus (Academy Bit2me) is a main concept of *blockchain* technology, and can be achieved through different protocols:

*Proof-of-work (*hereinafter *PoW)* (ibid.): it was the first created, *for public blockchains* by Satoshi Nakamoto (Bitcoin creator). Here, miners put their computers working on solving a cryptographic problem. The first to solve it gains the power to put the next block on the blockchain and, in addition, receives a reward for it: cryptocurrencies from that *blockchain* just mined. It is an algorithm that is used a lot, but that has certain disadvantages: its high energy consumption, according to the *MIT Technology Review*, "is estimated that Bitcoin consumes almost as much energy annually as all of Nigeria." Another drawback is its vulnerability to "51 % attacks": these attacks would be generated if 51 % of miners on the network agreed on a malicious target and decided to manipulate the *blockchain too*, for example, send two coins instead of one, to a given destination.

Buy cryptocurrencies vs. invest in cryptocurrencies

Buying means, the intention to have your own cryptocurrency wallet. There are two types: cold and hot. Hot wallets are connected to the internet. They can be found in cryptocurrency exchange apps, where you can exchange euros or dollars for cryptocurrencies. It is similar to having a bank account. Cold wallets are not connected to the internet. They can be made of paper or on hard drives, and their advantage is that being completely offline, they are safe from hackers. Like a physical wallet, the only thing they are vulnerable to is actual thieves. Both wallets work with two keys: a public key and a private key. You can think of the public key as an address so that people know where to send the money when they pay you, and the private key as a password, which only allows the holder to access the funds in the wallet.

Regarding the cold wallet, the user will have to transfer his private key to a hot wallet. Then, if the person wants to put the money back into a cold wallet, he will have to create a new one, since the given, one has been exposed on the Internet.

The main attraction is privacy. Cryptocurrency owners are looking to have a secure, decentralised fund that only they control, rather than banks or anyone else. And, if you want to pay directly with your cryptocurrency, you can, as long as the merchant accepts it. As with investing in cryptocurrencies, your funds will increase or decrease in value compared to the fiat currency (legal tender) that investors mostly use, probably euros. In order to collect the profits, it will be needed the conversion of the funds back into that

currency.

Illustration 5: Source, lexgoApp (2021)

However, when you invest in crypto, you don't necessarily have to own the currency you're investing in. As with fractional shares, there are a number of assets that replicate the price of the most popular cryptocurrencies, allowing you to make money when they go up and lose money when they go down.

Vivid Invest offers you this type of exposure with our fractional currencies. They replicate the price of cryptocurrencies 1:1 and you can convert them back to a fiat currency, such as the Euro, instantly. There are two main differences from buying. The first is that you cannot store your investment in an offline wallet. As you are likely to do this through a broker, your investment is an over-the-counter product accessed through an online application. The other difference is that you cannot pay with that cryptocurrency directly. Instead, you have to convert your investment into euros, dollars or whatever currency you are going to use, and then pay. This is not a big problem at the moment, as only a small number of merchants and platforms allow you to pay with cryptocurrencies, and most of them only accept Bitcoin or Ethereum.

2.8. Advantages and threats of using cryptocurrencies in your business

The emergence of Bitcoin first, and then cryptocurrencies, has altered the way SMEs trade in the market. However, is this behavior always positive? In this section we will look at the main advantages and risks of using cryptocurrencies in our businesses.

Advantages of using cryptocurrencies in your business

a.   It brings security to payments

The general rule, as seen in the first points, is that companies that want to transact in cryptocurrencies usually use a mining system, and *blockchain* technology. This means that most cryptocurrency transactions have been verified and bundled in a network in a *blockchain*, providing the necessary security. Cryptocurrencies will be recorded in a public ledger using very complex cryptographic hashes. And therefore, difficult to manipulate by third parties as there would be a reliable record of the information (although as we will see *infra*, there are other types of scams in the world of cryptos).

b.   Easier foreign payments and lower commissions

This advantage works both ways. On the one hand, the SME needs to make payments abroad either for suppliers, manufacturers, third parties or external partners. Whenever they are willing to do so through banking systems and transfer operators, these operators

charge a high amount of commissions and delivery times are usually longer (especially if we are talking about a third country). The benefit of payment with cryptocurrencies is that whether there are taxes or limitations on cryptocurrency payments depends on national legislation, but the general rule is that there is no geographical limitation on a crypto payment as long as there is no legislation to the contrary. Therefore, the way of processing payments is faster.

On the other hand, cryptocurrencies have the advantage that they may be sent virtually anywhere in the world and at any time of the day. This idea is especially attractive whether they want to expand their market to other countries. In other words, whether these companies were to accept cryptocurrency payments, they would cover purchases from customers in many different countries, whatever their time zone.

Nonetheless this also directly benefits consumers. Keep in mind that delivery fees and the estimated time for the consumer to receive your service may be very high in the traditional market and could deter them from making purchases from your company. Today, there are several companies that already allow their customers to pay with cryptocurrencies. For example, the airline Norwegian has opted for this way of processing payments faster and with lower fees.

The headlines of all the magazines announced already in 2020 that the Norwegian low-cost airline, Norwegian Air, would change its payment system and allow its users to pay for airline tickets with cryptocurrencies.

PR1-T2 Modules Template

Co-funded by the
Erasmus+ Programme
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Illustration 6: Norwegian Air B737 Source:Wikimedia

The main objective was to reduce the company's costs. When users bought their tickets with credit cards, the money was held until the time of travel. In the meantime, until payment was received, the airline had to organize its external financial resources. In addition, Norwegian used to pay between 1.5% and 2.5% of the ticket price as a tax to the financial services companies, which they passed on to the end consumer.

As Stig Kjos-Mithisen pointed out, CEO of NBX, these costs would disappear with the payment of cryptocurrencies; and consumers would benefit from being able to buy cheaper, easier and faster. The airline Norwegian created a blockchain network called NBX (Norwegian Block Chain)[1]. Today its implementation has scaled into other fields of digital asset trading and it is the only one to have an insurance fund valued at $150 million to cover unexpected loss events.

c. Generate brand awareness

Accepting cryptocurrencies as a form of payment can generate non-economic benefits for your brand: improving your image. In other words, there are companies that use cryptocurrency payments as a marketing strategy. For instance, imagine your company is in the technology services business, and you have decided to accept the circulation

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[1] Visit its webpage: https://nbx.com/

of cryptocurrencies. Your marketing strategy could project to the public that your company knows how to adapt to the changing reality, and that you are willing and forward-looking. This argument would be ideal for attracting investors and clientele looking for innovation or interested in cryptocurrencies and, therefore, would allow you to increase sales.

A good example is the giant Microsoft, which since 2014 has allowed Bitcoin payments to purchase products and services and uses BitPay to transfer money to Microsoft accounts. There the user can manage purchases of video games, apps, and desired items. But it went further, creating its own cryptocurrency Microsoft Coin, which has come to be accepted by the US government.

#DonateCrypto, #HODLHOPE

Illustration 7: Source: https://support.savethechildren.org/site/SPageNavigator/donation_crypto.html

Furthermore, we are not only talking about payments with cripto's, but also about donations. For example, the NGO Save the Children was the first NGO in the world to accept a donation in Bitcoin, in 2013. It has created a real advertising campaign for cryptocurrency donations, for example, for the year-end giving campaign it has created

the hashtag *#CryptoGivingTuesday*, which is celebrated on the Tuesday after Thanksgiving.[2]

Threats of using cryptocurrencies in your business

a. Collapse in the value of the currency

There is one characteristic that differentiates it from the money or currency that we know, and that is its volatility. To put it in a nutshell, cryptocurrencies work like the stock market. Their values rise and fall continuously due to sudden, external factors; whereas a traditional currency such as the euro has a constant or fixed market value.

The value of digital currencies varies over a period of time depending on the law of supply and demand, i.e. how much users are willing to pay for that asset. When digital currency is booming, everyone is tempted to invest. The problem comes when there is a sudden change in the market and the value of the currency falls. It often happens that individuals or business leaders venture into investing in digital currencies because it is 'the fashion' and they do not want to miss out on an opportunity without having financial knowledge. These people, when values fall, become suspicious and decide to withdraw all their money in one go to avoid incurring losses, which causes values to plummet even further. It is therefore essential to be well aware of the cryptocurrency market before investing and to keep abreast of fluctuations in its price.

Even the world's most popular digital currency, Bitcoin, is a victim of fluctuations. This first virtual currency has seen impressive rises in the market, with more than 20% in a single day. But by the same token, it fell 80% in 2018, dragged down the rest of the assets in the market and took three years to recover its value.

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[2]https://www.savethechildren.org/us/ways-to-help/ways-to-give/ways-to-help/cryptocurrency-donation

Illustration 8: Source: https://expansion.mx/mercados/2022/05/13/criptoinvierno-desplome-valor-bitcoin#:~:text=El%20bitcoin%20se%20desploma%2C%20%C2%BFpor%20qu%C3%A9%3F%20El%20panorama,su%20nivel%20m%C3%A1s%20bajo%20desde%20diciembre%20de%202020.

In 2021, it hit an all-time high of $67,700 per bitcoin. And just when it seemed that the market was booming, cryptocurrencies showed their volatility again, falling by almost 60% in 2022.


Illustration 9: Source: https://expansion.mx/mercados/2022/05/13/criptoinvierno-desplome-valor-bitcoin#:~:text=El%20bitcoin%20se%20desploma%2C%20%C2%BFpor%20qu%C3%A9%3F%20El%20panorama,su%20nivel%20m%C3%A1s%20bajo%20desde%20diciembre%20de%202020

b.   Scams

It seems that when we talk about a means of payment, scams are an intrinsic risk. In the case of digital currencies, there are different types of scams. One, email scams (phishing). Users receive in their inbox, an email about offers to buy cryptocurrencies, investment opportunities or balance sheets; and they are invited to enter a misleading website where they put their personal data. Hackers take advantage of this to illegally take the user's data. It is important to pay attention to the sender and not to open links that could be fraudulent. This form of fraud can also occur on social networks.

Outside this 'common' form, there are scams exclusive to the world of cryptocurrencies that are difficult to identify. This is the case in which a company creates a cryptocurrency linked to a booming brand in order to get users to buy cryptocurrencies. When they have enough money, the cryptocurrency disappears, revealing that the creators did not have permission to use the brand to which it was linked. The same has happened with the famous 'The Squid Game' series. The token for the hit Netflix series went from being worth a few cents to three thousand dollars in the short term because of the number of people interested in them. However, the reality was that these investments could not be sold later because the creators (let's call them scammers) had provided an anti-sale mechanism, and the initial buyers lost their money.
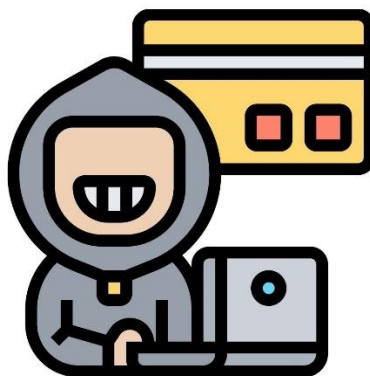
Other scams of 2021 include the scam by the Cajee brothers, leaders of the Bitcoin investment company Africrypt in South Africa. They disappeared with all the investments

made by their clients and argued that the accounts were unavailable because the company had been 'hacked'. Or the hacking of Poly Network.

This was a decentralized blockchain platform. The so-called "Mr. White Hat" discovered flaws in its security, and more than $600 million in assets were transferred. When discovered, the hacker returned everything he stole, claiming that his goal was to demonstrate the vulnerability of the platform. Instead of admitting what had happened, the platform used this game for a marketing campaign, and to give an image of good ethics by admitting its vulnerability and offering a '$500,000 reward' to "Mr. White Hat" for his work. So, the hacker received money, and also got off the hook for any legal charges.

3. Knowledge Assessment

Question 1: What is a Bitcoin?

[Answer 1] It is both a protocol, a payment network and a currency.
[**Correct answer**] **It is a virtual currency traded on alternative markets and guarantees high returns.**
[Answer 3] It is a cryptocurrency based on an anonymous network that allows payments to be made without paying the tax authorities.

[Generic feedback]: text

Question 2. Cryptocurrency mining is a process of...

[Answer 1] Payment of virtual transactions
[Answer 2] Increasing the value of coins
[**Correct answer**] **Verification and creation of new coins**

Question 3(true/false): Digital wallet is a device or program that can store Bitcoin and create private keys.

A. True
B. False

Feedback: Digital Wallet for Bitcoin is a device or program that can receive and send Bitcoin transactions and store private keys.

Question 4. Advantages of using cryptocurrencies in your business are:

A. **It brings security to payments**

B. Gain additional clients

C. Gives more security to your employees

D. **It gives opportunities for easier foreign payments and lower commissions**

Question 5 (matching): Match the concepts with their explanations.

A. E-wallets.
The loss or theft of the keys can mean the loss of the cryptocurrencies without the possibility of recovering them

B. Bitcoin.

It mainly consists of a cryptographic key that is associated with a virtual wallet, which deducts and receives payments

C. Payment gateways.

The companies that take on the perceived risk of cryptocurrency payments by using their wallet(s) to facilitate transactions between merchants and their customers.

D. MiCa proposal.

A regulation on the Markets in Crypto Assets, with the aim of establishing a digital finance package that would regulate the European economy and provide legal certainty for cryptocurrencies.

4. Module Summary

A Cryptocurrency is a form of digital cash that allows people to transfer value in a digital environment. It's a new paradigm for money, revolutionizing the payment system across the globe. This Module clarifies the state of art of the cryptocurrencies and payment gateways, their type, and its use. It also gives the user ideas on how to invest, store or buy the cryptocurrencies. Also, many examples and use cases allows the learner to understand better all the concepts and its functions. The modules also provide an overview on how to implement the use of cryptocurrencies in business.

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