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An Exploratory Study Investigating Cryptocurrencies Acceptance as a Form of Payment

The case of SMEs in Italy and Switzerland

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Abstract

This report aims at researching the emerging topic of businesses accepting payment in cryptocurrencies. Indeed, one can observe that increasing news are being published regarding corporations starting to accept Bitcoin and other digital currencies as a mean of payment. Starting from this point, the research focuses on some fundamental aspects driving this decision focusing on SMEs in two countries in which the acceptance of this payment method is particularly advanced within the European context, being Italy and Switzerland. Moreover, SMEs constitute about 99% of the total companies operating in both territories. This study approaches the question whether companies, from a business perspective, should incorporate this technology and start accepting these assets among their revenue streams. The research question is tackled by first analyzing the motivations leading the companies interviewed to start accepting Bitcoin, which is the focus of the research, as a form of payment. Later, the financial re-deployment, accounting registration and future trends are also considered to drive a conclusion answering to the initial question. In a world where these assets are gaining importance, with some legislations already introducing them as legal tender, these specific aspects concerning a potential business dilemma in certain industries shall be analyzed. The existing scientific literature used as support for the theoretical side of this report mostly tackles some of the above-mentioned topics individually, without fully diving deep on the various aspects which a company should consider before accepting Bitcoin. Therefore, the results of this paper can leave the room for future research on the increasing trends concerning the commercial employment of Bitcoin and other crypto currencies, especially with a different business, industry, or geographical scope. The result of this research highlights that the acceptance of digital currencies as a form of payment still regards a niche of early adopters who are eager to experiment and bring innovation to their organizations or passionate about the specific technicalities concerning Bitcoin. The main motivation to start accepting these assets mainly relate to a marketing opportunity, while the re-deployment of this revenue can be performed by either holding or directly converting the amount in the correspondent value in fiat currency. From the accounting perspective, the lack of uniformed international standards leave room to interpretation during the financial registration. Future trends show positive aspects such as a greater consideration from institutions to potential blockers represented by the environmental and anonymity aspects. Overall, experimenting this payment seems to be a viable option due to the favorable period and low installation cost, while a treasury strategy is advised due to the constantly changing regulatory landscape and high volatility.

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Introduction

Satoshi Nakamoto, fictitious name of Bitcoin's creator, wanted to decentralize the financial system using the Blockchain technology. In addition, giving the opportunity to everybody owning a mobile phone to perform financial transactions, even without a bank account, was another important motivation to introduce this novelty (Nakamoto, 2008). Nakamoto wrote the Bitcoin's White Paper on October 31st, 2008, right when the financial crisis was taking place. The Bitcoin technology then led the way to the creation of many other blockchains which are now active in the market. After almost 14 years since the publication of Nakamoto's whitepaper, can we say that Bitcoin, and other cryptocurrencies constitute a real alternative to the traditional cash and banking institutions? The aim of this research is to analyze cases of companies and organizations accepting Bitcoin as a form of payment to evaluate whether, considering the current context and potential future developments, is convenient or not for those entities to accept cryptocurrencies in exchange of their goods or services. The first chapter will describe the history of Bitcoin and other cryptocurrencies, as well as the foundations behind the Blockchain technology and a comparison among the main cryptocurrencies currently operation in the market. The second chapter will provide some case studies of organizations accepting Bitcoin as a form of payment and will examine in-depth their motivations and potential commercial benefits in doing. Chapters three and four will analyze this decision respectively on financial (what to do with Bitcoin's revenue) and on accounting (how to register Bitcoin's revenue) perspectives. Chapter five will then proceed on describing the main future trends potentially boosting or slowing down a mass adoption of cryptocurrencies as a form of payment. To summarize, this paper focuses on the acceptance of Bitcoin within the context of SMEs in Italy and Switzerland, trying to answer the question:

Considering the current landscape and future trends, should companies accept cryptocurrencies as a form of payment?

Methodology

The primary research developed to support this report consists of semi-structured interviews to either industry experts or companies accepting Bitcoin as a form of payment. The former could consist of experts of the overall industry of cryptocurrency payments or holdings for business venues, or they could come from a specific branch of the crypto payments treated within this study. Two examples were Jason Freeman, investment banker ex-Goldman Sachs, specifically providing knowledge on Bitcoin's volatility and financial re-deployment and Michael Merz, Head of Accounting at Bitcoin Suisse, crypto exchange trading various cryptocurrencies, and, therefore, being specialized on the financial registration of Bitcoin for companies. Geographically, the companies and experts interviewed were mainly located in Italy and Switzerland, both representing important landscape for companies accepting Bitcoin in Europe. Moreover, the size of the companies was largely made of SMEs, with the big corporation entailing more difficulties in taking this decision due to shareholders' and regulators' pressure as well as a less flexible structure. Therefore, the sample analyzed, despite the limitations which will be described at the end, can provide a general overview on the current state of Bitcoin acceptance as a mean of exchange given that SMEs constitute in many countries, including Italy and Switzerland, most of the companies operating while the two mentioned economies are two of the most open to this innovation. For a detailed sample description focusing on the background of the people interviewed, see Appendix 1. To get information on the companies arising from the sample interview, see Appendix 2. The interviews lasted, on average, 30 minutes and treated five topics being *motivations, commercial benefits, re-deployment, accounting and future trends.* Linked to these five macro-categories, 11 questions were asked in total, trying to then to compare the answers given via Microsoft Excel. Given the fact that Bitcoin's acceptance from companies is still at an early stage, few public quantitative data could be found, justifying the choice of the qualitative analysis. On the other hand, semi-structured interviews were chosen to give the opportunity to the respondents to digress in case they could present original answers or alternative topics compared to the ones that were pre-thought. Due to this reason, some miscellaneous comments, inspiring some in-depth examinations were also analyzed, although not comparable with other respondents. A general analysis of the sample as well as the transcripts of the interviews can be found in the appendix. Overall, this primary research was coupled with secondary data originated from scientific literature or financial articles.

Chapter One: The technology

Brief historical background

The idea of creating a digital currency circulating in a decentralized financial system did not come as a revolution in 2008. Indeed, the first time a cryptocurrency was officially mentioned dates back in the 1980s by *David Lee Chaum*, an American computer scientist. Precisely in 1982, he developed a dissertation titled as "Computer Systems Established, Maintained, and Trusted by Mutually Suspicious Groups", which is known as the first statement in favor of what we know today as the blockchain technology (A. T. Sherman, 2019). Chaum even created its own electronic cash company, *Digicash*, back in 1989. Their transactions were peculiar as they were fully anonymous due to cryptographic protocols developed by the scientist. He referred to this process as "blind signature" which could allow an untraceable payment system (Chaum, 1983). Although the idea was considered as promising already, consumers in the US were just starting to use credit cards and, therefore, relied heavily on them. On the other hand, lower commission fees and the transactions' anonymity were two aspects that David Chaum particularly stressed when marketing this product. Despite everything, Digicash declared bankruptcy in 1998. Chaum's comment at the time was: "It was hard to get enough merchants to accept it, so that you could get enough consumers to use it, or vice versa," (Pitta, 1999). People were shown to be willing to sacrifice part of their privacy for convenience and the society did not feel the need to have a financial system on the web.

Thus, the real change happened in 2008. An anonymous individual (or group of individuals) named as *Satoshi Nakamoto* posted a paper on the Internet titled as "Bitcoin: A Peer-to-Peer Electronic Cash System," (Nakamoto, 2008). The timing of Nakamoto's paper release was favorable as the global economy was in recession due to financial crisis, caused by disproportionate leverage taken by some of those financial intermediaries Bitcoin intends to bypass. Soon after releasing this paper, on January 3rd, 2009, the *genesis block* was mined by Nakamoto with a reward of 50 bitcoins (Chohan, 2017). The first transaction took place between Nakamoto and Hal Finney, American developer, and founder of "Pretty Good Privacy", the most widely used email encryption system in the world. Finney received 10 bitcoins from Nakamoto on January 10th, 2009, a week later the genesis block was mined (Zimmermann, 2022). Afterwards, other developers were able to create alternative coins based on Nakamoto's code. Moreover, other blockchain technologies were founded based on different premises and scopes. Among the first to emerge, there was *Litecoin* in 2011, still an

important cryptocurrency as of today, which will be described thoroughly later in the chapter. During the years, the popularity of cryptocurrencies rose dramatically, and many companies started to get an interest in the crypto world by accepting them as a form of payment. As of February 2022, there are more about 10,000 existing cryptocurrencies with a total market cap of €1.62 trillion. Bitcoin is still the dominant coin with a value of nearly €681 billion, about 40 percent of the total market (CoinMarketCap, 2022).

Blockchain technology

The Blockchain technology is a public distributed ledger to support Bitcoin transactions. The idea of a cryptographically secured chain of blocks was described for the first time in 1991 with the main scope of registering digital documents and protecting them from external attacks (ICAEW, 2022). However, it started to generate interest since the publication of Bitcoin's paper in 2008. Blockchain can be described as a subtype of web technology, in which the transactions are registered by adding blocks whenever a new operation happens. These blocks are held together through cryptography which can be broadly seen as the practice of ensuring security in communication from adversarial behavior. For instance, cryptography is commonly used to prevent external entities to read private messages (Bellare & Rogaway, 2005). WhatsApp, in fact, uses end-to-end cryptography to secure user's privacy (WhatsApp, 2022). A widely employed definition of blockchain by Merriam-Webster is "a digital database containing information (such as records of financial transactions) that can be simultaneously used and shared within a large decentralized, publicly accessible network" (Merriam-Webster, 2020). The process of ordering a new transaction (and creating a new block) on chain is called *mining*. The miners are those individuals or group of individuals possessing advanced informatic skills and equipment, who solve complex calculations to discover a function needed to create a new block on the chain. When a miner succeeds, they receive a reward for their effort. Hence, in Bitcoin's example, they will receive a certain amount of Bitcoin, currently equal to 6,25 BTC or about € 240K as of February 2022 (Browne, 2021). To better describe how a Blockchain works, two fundamental features such as the *security* and the *public ledger* aspects will be examined.

Security

Security is a fundamental factor for a Blockchain to be a viable solution. To properly analyze this aspect, it is necessary to look at the transaction process and the elements stored in each

block. First, a hash function is needed to create a new block. The job of the miner is indeed to first guess a numerical input to start the hashing function, being the *nonce* (e.g., 0000). Then, by solving a computer puzzle, the miner will try and complete this function. Once this is done, they will submit the solution to the network which will then verify and validate. This process is called "Proof-of-work" (PoW) and it is needed to ensure that the information on the chain is not altered. Finally, a new block is created on the chain. For Bitcoin, it takes 10 minutes on average to complete a transaction and create a new block.

While examining the individual blocks, there are three main elements stamped. Those are (i) the data stored on the block (ii) the hash code referred to the block (iii) the hash code referred to the previous block.

i. The *data stored* by a block is dependent on the nature of the Blockchain. For instance, in Bitcoin, the data stored are about the transactions. Hence, the information stored will be the sender, the receiver and the amount of transaction.

ii. A *hash* is a code which identifies the block with a unique identifier. It can be compared to a fingerprint.

iii. The third element is the *hash of the previous block*. This, more importantly, is what makes the Blockchain technology trustless. In fact, for a new block (transaction) to be verified, the hash of the previous block must correspond to the previous identifier. If a block is tampered, both hashes (the current and the previous one) in the block itself will be modified resulting in the hash of the previous block and the previous block current code to be different. Therefore, this transaction will not be verified (Zheng Z, 2016).

On the picture below, a clear schematic representation on how the Blockchain works for *n transactions* (TX) is presented.

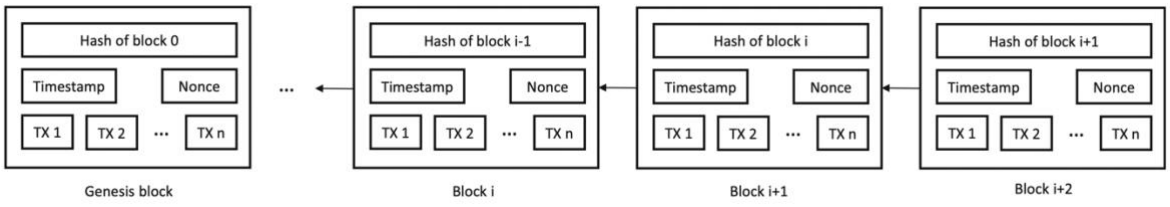

Figure 1: Transactions on the Blockchain (Zheng Z, 2016)

Public ledger

Blockchain is a public ledger, meaning that everyone can join. When a new block is created since there is a new transaction on the chain, this new piece of information is sent to everybody (or some of them) being already on the network and the chain verifies the new information to confirm that no element was tampered. In the case of *permissionless* blockchain, the consensus mechanism is distributed in all the nodes of the chain. Instead, when a blockchain is *private or permissioned*, only a few nodes are allowed to participate in the validation process (Tapscott, 2016).Every permissionless blockchain needs to have a native digital asset or Token connected to it. Still taking the example of Bitcoin, when hearing about the Bitcoin (with capital "b") the reference is usually made to the blockchain developed by Nakamoto. The native digital asset is the bitcoin (small "b") or the abbreviation BTC (Bustillos, 2013). This native asset is created to reward the participants contributing the maintenance of it.

Crytpo Assets

The Blockchain achieved a great success as it has been employed in many other ways unrelated to cryptocurrencies. Generally, digital assets can be defined as *"*electronic files of data that can be owned and transferred by individuals, and used as a currency to make transactions, or as a way of storing intangible content, such as computerized artworks, video or contract documents*"* (Vincent, 2021). These assets can be divided into five main classes, which will be described briefly throughout this paragraph:

a. *Cryptocurrencies*
b. *Platform tokens*
c. *Utility tokens*
d. *Securities tokens*
e. *Natural asset tokens*

Cryptocurrencies

Oxford dictionary defines a cryptocurrency as "a digital currency in which transactions are verified and records maintained by a decentralized system using cryptography, rather than by a centralized authority" (Oxford Learner's Dictionaries, 2020). Bitcoin remains the main cryptocurrency with almost 40 percent of market share. However, since the launch of Bitcoin in 2008, other projects were launched. Litecoin, as already mentioned, was one of the earliest to be created after Bitcoin and it shares many features with it such as the PoW mechanism and the limited coin supply. However, particularly interesting to describe is the privacy aspect of the transactions managed through digital currencies. Indeed, the increasing demand for privacy led to the launch of the so-called *private coins*. For instance, *Zcash*, which was built on Bitcoin's code, gives the sender or the receiver an additional opportunity to maintain their financial privacy with the *zero-knowledge proof*, allowing a transaction to be verified without disclosing information on the sender, the receiver, or the amount (Zcash, 2022). It is worth mentioning that, after a period of distrust in cryptocurrencies (unlike the blockchain technology which was early adopted) by the major banks, JP Morgan decided to integrate Zcash's zero-knowledge proof into its own blockchain for use cases dedicated to certain asset classes (Tapscott, 2016). Another interesting project is *Metronome*, which can be imported and exported across blockchains.

Platforms

Apart from digital currencies, platforms can be based on the Blockchain technology serving various purposes. Ethereum, for instance, is frequently mistaken as a specular asset to Bitcoin. On the contrary, Ethereum is a platform technology which enables *distributed applications (DApps)*, being applications running in a trust-minimized manner on a blockchain. In fact, Ethereum is a blockchain which is built on Bitcoin's concept, but being programmable, can be used to trade different digital assets other than the native one (*ether*), including Bitcoin itself. In fact, they consider themselves to be a "marketplace of financial services, games and apps" (Ethereum, 2022). At the core of this marketplace, there are the smart contracts, defined by Nick Szabo as a "computerized transaction protocols that execute terms of a contract" (Maher Alharby, 2017), with the main goal of minimizing the need for legal and financial intermediaries. In addition to that, Ethereum emerged as an important platform for a practice called *ICO (initial coin offering)*, through which projects can raise peer-to-peer fundings from investors (Tapscott, 2016) . In this situation, ether (the native token) can be considered as the fuel as the currency is used to make transactions and run the platform. Ether is traded on the

main coin exchanges and is fundamental for the functioning of the platform and all the distributed applications running on it. Other Dapp-focused platforms have recently emerged, trying to challenge Ethereum's dominance. For example, *Aion* is designed for large-scale enterprise applications. A great attention is also being given to the still unrealized *Polkadot and Cosmos'* projects, which promise to unite all blockchains into a giant web (Tapscott, 2016).

Utility Tokens

A utility token is a crypto token serving some use case within a network. An example is *BAT (Basic Attention Token)* coin, which can be earned by browsing on Brave, where users can enjoy an *ad-free experience* with a higher level of privacy. The users can collect those coins by clicking on the non-intrusive ads present on this browser and they can use them to send tips to their favorite content creators (Nibley, 2021). Another interesting case to mention is *Sweetbridge*, a *discount token* allowing users to get price discounts on various goods or services by simply holding the token on the Sweetbridge wallet. It is important to remark that these assets are usually not stand-alone blockchains, but they work on top of existing networks, such as the Ethereum one (Tapscott, 2016).

Security Tokens

A Security Token is the digital representations of ownership of assets (e.g., gold, real estate) or economic rights (e.g., a share of profits or revenue). A new Blockchain could be specifically created for the exchange of these tokens or, again, they can be on existing platforms (Deloitte, 2021). The main difference between the security tokens and utility tokens is that the former can provide the users with the right of ownership to a company, as it happens when buying common stocks. The concept of *equity token*, indeed, would constitute a proper digital asset that can be traded peer-to-peer rather than through financial intermediaries. It should be noted that these tokes do not represent a digital thumbprint of an off-chain asset (such as a real stock) but tokenized assets on their own which can be traded for value.

Natural Asset Tokens and Commodity Tokens

There is a wide consensus that blockchain could help us solve the problem of over usage of natural resources which are essential for the life on earth and for its economy such as water, carbon, and air. According to Michael Casey: "We may be moving toward a model of programmable money that can deliver a more automated system of internal governance over common resources" (INSEAD, 2022). For instance, one could invest on a token backed by gold, which will be lose volatile and more liquid. This is the case of the Royal Mint Gold, which is a digital token backed by physical gold, born from a partnership between Royal Mint and the Chicago Mercantile Exchange (INSEAD, 2022). However, a crucial area to analyze is when these tokens can constitute an incentive for people to reduce the consumption of these resources, therefore being aligned with public environmental interests. As an example, companies such as *CarbonX* (Canada) aims at rewarding organizations and individuals when they respect their respective targets regarding carbon emissions. Companies can receive carbon credits which they can then redeem for real value (CarbonX, 2022).

Cryptocurrencies

After describing the main assets arose from Blockchain. A focus on cryptocurrencies (the first asset class) and crypto payments is provided. A brief recap of the market landscape will be initially provided. Then, the most accepted digital currencies by merchants are displayed and a brief digression on Bitcoin, Ethereum and Litecoin will therefore be developed. Finally, the Lightning Network as a solution to the scalability problem of Bitcoin's Blockchain will be explained.

Market overview

As already pointed out above, the focus of this research will be on crypto payments and, specifically, on Bitcoin. This cryptocurrency is in fact the original one and constitutes more than 40 percent of the whole market capitalization (CoinMarketCap, 2022). Any cryptocurrency other than bitcoin is defined as *altcoin (alternative coin)* and, as of February 2022, there are about 10,300 projects active on the market. However, a large portion of these cryptocurrencies is not significant as the first 20 currencies make up nearly 90 percent of the total market (Statista, 2022). From the graph below, one can observe the evolution in the number of cryptocurrencies present from 2013 to 2022.

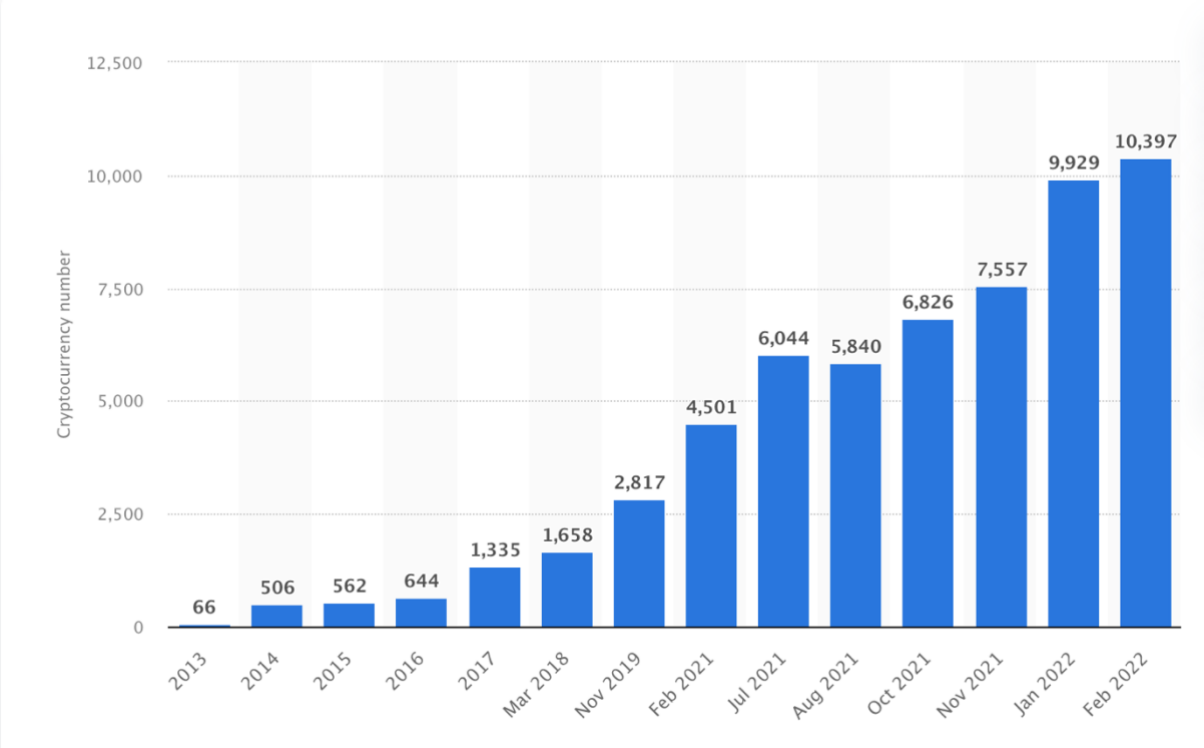

Figure 2: Number of cryptocurrencies worldwide from 2013 to February 2022 (Statista, 2022)

One can observe a record growth of 31 percent between November 2021 and January 2022. This crypto boom can be explained by the increasing public interest in the crypto world. Some important factors are the all-time highs reached by both Bitcoin on February 19, 2021 ($1 trillion market capitalization) and ether, the increasing curiosity over Non-Fungible Tokens (NFTs), Elon Musks's interest in *Dogecoin* (the most famous and valuable *memecoin*) and the El Salvador legally adopting Bitcoin as an official currency (Locke, 2021). Looking particularly at the case of El Salvador, national instability can be an important factor to further analyze potential future growth trends in the industry. In this sense, one could look at political instability (e.g., conflict zones, war, etc.) or economic instability (e.g., hyperinflation).

Main cryptocurrencies used for payment

As mentioned above, Bitcoin generated interest in the industry and, therefore a lot of new projects were initiated during the time. However, experts claim that only the top 100 in market capitalization is considered as a relevant sample and, in fact, *Coin Market Cap* only displays this share of cryptocurrencies. Which cryptocurrencies are the most adopted by merchants as a form of payment? The table below shows the top 10 digital currencies accepted by merchants

as a form of payment. Due to the lack of publicly available data, the numbers were skimmed and adapted both from the official websites of the cryptocurrencies mentioned as well as external online articles mentioning them as the most accepted for payment. In addition to that, the website *cryptwerk.com*, specialized in indicating cryptocurrencies' owner places where to spend their holdings, was used as a reference.

Name	Acronym	Number of merchants (as of February 2022)	Market Share
Bitcoin	BTC	15.174	44,09%
Ethereum directory	ETH	4.049	11,76%
Litecoin directory	LTC	3.255	9,46%
Bitcoin Cash directory	BCH	2.919	8,48%
Dogecoin directory	DOGE	2.038	5,92%
Dash directory	DASH	1.757	5,11%
XRP directory	XRP	1.641	4,77%
Monero directory	XMR	1.279	3,72%
Tether directory	USDT	1.237	3,59%
Ethereum Classic directory	ETC	1.068	3,10%

Table 1: Top 10 cryptocurrencies adopted for payment (cryptwerk, 2022)

As one can observe, Bitcoin is the most widely accepted with more than 7,500 merchants accepting it worldwide. The size and industry of the organizations integrating it among their revenue mix will be discussed in the next chapter. Overall, one can conclude that, being the most valuable, the one with the highest market capitalization and the most widely recognized, Bitcoin can represent both an exchange mean as well as a reserve of value.Another important aspect to note is that the top three coins *(Bitcoin, Ethereum, Litecoin)* account for about 55 percent of the overall share. Therefore, those other projects are worth being analyzed to examine what are their characteristics and how do they differ from Bitcoin and whether they might challenge its dominance in the future.

Bitcoin vs Litecoin and Ethereum

First, it is important to remark though that Bitcoin is the original cryptocurrency project and, therefore, stands as a reference model for all the other cryptocurrencies which are referred to as "altcoins". The key differentiating points that will be analyzed are consensus mechanism, mining algorithms, the block generation time, the total number of coins, average transaction fees and transaction speed.

In terms of *consensus mechanism*, both Bitcoin and Litecoin use a "Proof of work" (PoW) mechanism, which was described in the previous paragraph concerning Blockchain technology. Again, this algorithm was first introduced by Bitcoin and then deployed by many other later projects (Bitcoin, 2022). On the other hand, Ethereum has circumvented the need for mining with the switch to the *"Proof of stake" (PoS)* protocol. This is not based on mining but, as the name suggests, on the stake owned in the system (the number of coins owned by each individual participant). When an individual holds a higher stake, they will have a higher probability to be selected to validate the next block. As a matter of fact, they are not called miners but *"validators"*. The security issue in the PoS is solved by the fact that, if the validators approve fraudulent transaction, they will lose part of their stake and, therefore, lose more money than they gain, partly tackling the missing penalty mechanism in the PoW system. Compared to the PoW, this system is less expensive as a validator does not need the computer power required to mine a Bitcoin or a Litecoin. Another important effect is the lower energy use, which constitutes an important public debate on Bitcoin. Another benefit of this innovation is that, according to many, it appears to be a more decentralized way of gaining coins. In fact, miners have been found to create mining pools, being large group of people getting together and using their know-how and equipment to build more blocks, therefore creating a consortium-like organization. If this group of people were to hold the majority (51 percent of more) of Bitcoins, they could approve fraudulent transactions. This was again among the main issues discussed above about PoW. This risk is not totally erased in PoS. For instance, if an individual or a group holds 51 percent or more of stake, they could be almost certain to get to validate new block more often and, therefore, they could tamper the information on the block (O. Vashchuk, 2018).

About the different mining algorithms, there is a difference between Bitcoin and Litecoin, although they are similar in their usage of the PoW consensus algorithm. Bitcoin uses the *Secure Hash Algorithm* (SHA-256), which requires significant computer power and therefore increases the risks of computer power centralization discussed above.Litecoin, instead, uses *Script* mining algorithm which simplified some parameters to solve the above-mentioned problem, making it possible to perform CPU mining which is more affordable and requires lower energy usage (Pagliari, 2019).

However, the main differences can be noticed in terms of TPS (transaction per second) and average transaction confirmation time. Bitcoin can process from 3 to 7 TPS, while the average block confirmation time, as already pointed out, amounts to 10 minutes. Litecoin, in turn, completes up to 56 TPS. However, the average transaction confirmation time reaches 2,5 minutes. Finally, Ethereum can complete from 15 to 25 TPS, confirming a block in 6 minutes on average (Craig, 2021). Although, the comparison might result in a net disfavor for Bitcoin, it is important to notice that TPS does not definitely indicate the superiority of one blockchain over another one, although many recent projects aim at maximizing the TPS score and generate interest in users. In fact, industry experts wonder that if a blockchain generates massive TPS, the Blockchain cannot be fully decentralized, therefore losing the core concept of the whole cryptocurrency in a decentralized economy project. This, of course, would degenerate the core concept of the blockchain itself (Mappo, 2018).

Finally, the *supply amount (number of available coins)* differs. Bitcoin's supply is limited to 21 million BTC, while Litecoin is limited to 84 million LTC. Ethereum, on the other side, has no general financial cap but just an annual minting limit of 18 million ETH. *Average transaction fees* can also vary. Bitcoin has the highest average transaction fee with 3,9 percent. Ethereum registered an average of 1,6 percent. Finally, Litecoin results as providing the cheapest fee rate with an average of 0,07 percent (Popov, 2022).

To sum up, the table below shows the main differences discussed in this paragraph.

Coin	Blockchain	Consensus algorithm	Mining algorithm	TPS (transactions per second)	Avg block generation time (min)	Supply limit (million)	Avg transaction fee rate
BTC	Bitcoin	PoW	SHA-256	3-7	10	21	3,93%
ETH	Ethereum	PoS	N/A	15-25	6	18/year	1,60%
LTC	Litecoin	PoW	Script	56	2,5	84	0,07%

Table 2: Main differences between Bitcoin, Ethereum and Litecoin

To conclude, one can observe that there are other interesting and valid projects apart from Bitcoin. Particularly, Ethereum and Litecoin brought innovation especially with regards to the consensus and mining protocols. Moreover, they can offer higher speed and lower transaction fees on average. However, Bitcoin can still be considered as the reference in the cryptocurrency market because it was the pioneer project leading to many other coins based on its coding, to its market share and to its adoption. Especially, the celebrity leading to high adoption both on the consumer side and on the merchant's, one is an important network effect which might allow Bitcoin to be better integrated in national and international regulations in the future. Therefore, this research is going to focus on Bitcoin's business adoption.

Scalability issue in the Bitcoin blockchain

Before moving on to the case studies, an important matter need to be examined is the scalability issue of Bitcoin's blockchain. Indeed, one of the main limitations of blockchain is the fact that, when the number of transactions increase, the limited processing capacity can lead to increased verification times. To solve that, the *Lightning Network* was implemented in 2018 (Tapscott, 2016). As one could observe from the previous paragraphs, the main limitations in Bitcoin's transactions are average transaction fees and average transaction verification time. Indeed, the fees on a Bitcoin transaction are not based on the amount of the movement but on the energy consumed for the transaction. Moreover, there will be more transaction in "backlog", meaning that the processing time will increase and there will be more transactions waiting to be verified in an increasing queue. This constitutes an issue especially when the traffic on-chain increases, reaching the layer's saturation level. In this case, there will be both higher fees and higher transaction verification time.

What is the Lightning Network? It is officially defined as a "second layer technology applied to Bitcoin using micropayment channels to scale its Blockchain's capability to conduct transactions more efficiently" (Lightning Network , 2022). Basically, this constitutes a network of external payment channels based externally to the original Bitcoin blockchain which allows transactions to be developed off-chain. The goal is to minimize the amount of transactions developed at the same time on-chain in order to avoid saturating it and to finally maximize its efficiency. The result of that is a higher scalability of it, making it a more sustainable solution for global implementation. Hence, the result would be instantaneous transactions at almost zero fees.

How does it work? It is important to explain that only the coin exchange is performed off-chain on the second layer. The process is both initiated and finally registered on-chain. To better understand the procedure, imagining a period of frequent transactions between two parties A and B is useful. There are three transactions which are registered on chain: (i) the opening transaction, (ii) an intermediate deposit transaction (ii) the closing one indicating the final amounts of the parties A and B participating in the transaction.

As a real case example, A can purchase coffees and bakery at her favorite coffee shop in Bitcoin. Hence, one can assume these transactions are frequent. Through the Lightning Network, A can open a payment channel with the coffee shop (opening transaction), deposit €100 worth of Bitcoin (deposit transaction). A will then perform her frequent transactions and then A will close the channel at the end when no findings are left (closing transaction). In this way, A's transactions with the coffee shop are instant and without fees.

The network side of this technology is given by the fact that if B, for instance, opened a channel for their favorite grocery store accepting Bitcoin, while also buying at A's favorite coffee shop, there will be a connection between A, B and the two stores. This means that A will be able to use the channel created to buy from B's network (the grocery store) and vice-versa.

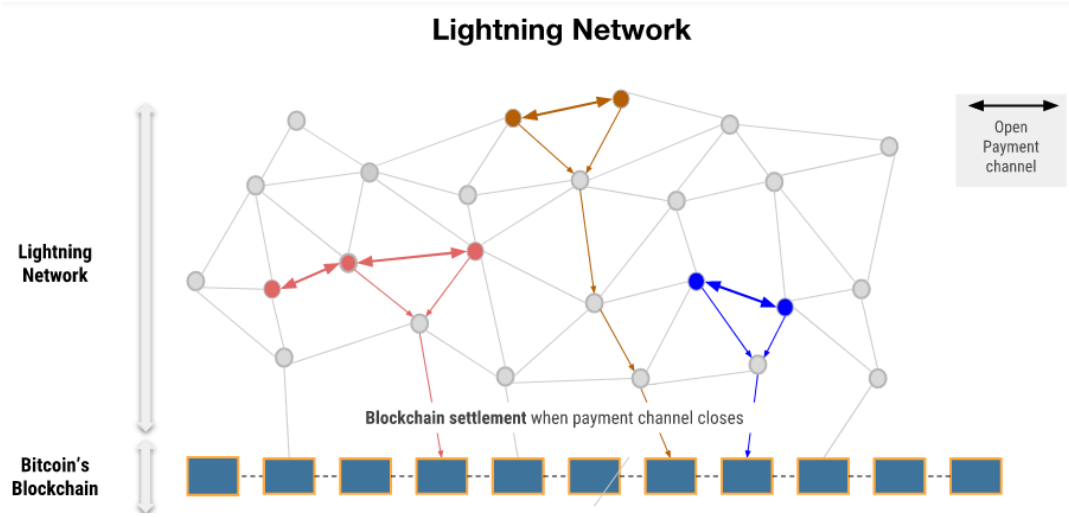

Figure 3: Lightning Network (Hoogendoorn, 2019)

Chapter Two: Accepting Bitcoin as a form of payment

After describing the history, the Blockchain technologies' fundamentals and providing a market overview on the cryptocurrencies' industry, a focus on accepting Bitcoin as a mean of payment is going to be developed. Within this chapter, the proceeds of the interviews, which form the primary research supporting this report, are going to be employed to analyze the motivations pushing companies to start accepting Bitcoin as a form of payment. Later, potential commercial benefits will be examined, analyzing the answers given by my interviewees when asking them whether they could observe or not some commercial benefits arising from this decision. This specific section also aims at answering whether, nowadays, one can observe a consistent consumer demand for the integration of payments in Bitcoin. Afterward, the two first paragraphs will be integrated with external data on the Bitcoin payment global circuit, describing the main components of this payment industry as well as macro data on Bitcoin's acceptance as a form of payment.

Main reason to accept Bitcoin as a form of payment

Before examining the different aspects related to the acceptance of Bitcoin as a payment, an analysis of the main motivations leading to this decision is needed. Understanding why merchants decide to adopt this new currency is fundamental to get an idea on what these early adopters think about the current cryptocurrency payment landscape. Some studies have been published pointing out potential advantages that Bitcoin and cryptocurrencies may bring to the business. Deloitte, which has been showing a rising interest in the topic of cryptocurrency, published an article highlighting why cryptocurrencies should be accepted by a company. This report suggests that cryptocurrencies may allow a company to access a new demographic group, generate awareness about this new technology, position the firm in a circle of innovators and that it may also be derived as well by clients' requests (Deloitte, 2020). After this first reading, there was a first interview with the Co-founder and Business Development employees of Bitcoin People. El Hadji, Emanuele and Davide, also included as "experts" within the interviewing sample, provided me with other potential reasons being higher visibility, Bitcoin as a facilitator of international transaction and the fact that Bitcoin's early adopters might be passionate believing in the Bitcoin's project and philosophy. Then, this question was asked to

all the other participants to my qualitative research. Their answers are summarized in the graph below (Figure 4).

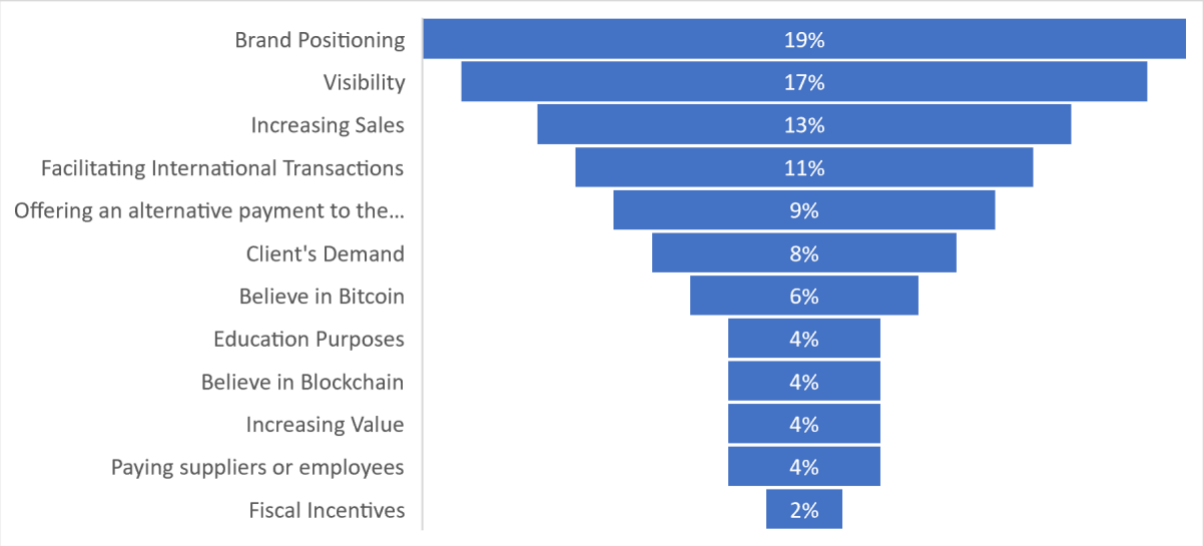

Figure 4: Answers to *Question 1:"What were your main motivations to start accepting Bitcoin as a form of payment?"* (53 answers, from 05/03/2022 to 08/04/2022)

In total, 53 points were answered during the interviews to the question *"What are the main reasons that led you to this decision?"*. As one can observe, *Brand Positioning* was mentioned 19% of the time, being the major reason why starting to accept Bitcoin as a form of payment in this moment. Visibility, concerning the opportunity to get advertising mainly through external press and word-of-mouth, was also widely mentioned (17%). Then, a larger difference can be observed between the second ranked motivation and the third one. Indeed, increasing sales, mentioned 13% of the time, was always suggested as a potential option more than a real motivation, meaning that the expectations to attract new clients by including BTC payment is something that these merchants expect more in the long-term rather than in the short one. In this paragraph, a thorough description will be focused on the 5 most cited reasons, which are shared by the external literature as well as by own research. Those are *brand positioning, visibility, increasing sales, facilitating international transactions, and offering an alternative payment to consumers.*

Brand positioning

This motivation concerns the answers pointing out at positioning the company into a circle of innovators and, therefore, being perceived as ahead of competition. Moreover, the respondents answering that they are always careful to innovations and that they always want to shape them within their activities also fell in this category. Positioning the company among the innovators was mostly mentioned by experts or by those individuals working in organizations being in contact with many merchants accepting Bitcoin. Hence, the solidity of their opinion increases by the fact that they can observe the general trends in the industry. El Hadji defines it as the "strategic reason" for accepting BTC (Interview 4 – see Appendix 3). Robert Bregy, from Lugano's public administration, highlights the fact that Lugano aims at being seen as one of the main European hubs for Bitcoin holders and for crypto start-ups. Hence, rendering Bitcoin a legal tender as well as the partnership with Tether facilitates the increasing public perception of the city as an innovator and business-friendly environment (Interview 13 – Appendix 3). Usually, this aspect is an observable artifact even when looking at other movements from the company or activity. Fabio Valli, for instance, a dentist operating in Brescia, Italy says that "hey are always open to innovations and that, for this reason they also recently introduced the Scalapay's solution as a payment alternative (Interview 5 – Appendix 3). In fact, Fabio points out that, being the dentist usually an expensive merchant for people's pockets, introducing the option for the clients to pay in three installments can surely be beneficial from the business by increasing client perception and, therefore, satisfaction (Interview 5 – see Appendix 3). Arguably, Scalapay's solution can be compared to the acceptance of Bitcoin. However, the latter is surely more innovative as it deals with an online currency which is still not widely adopted for payments. As of the former, although being innovative, the tangent results for the business are surely more visible, with some merchants experiencing up to 200% increase in sales (Osborne, 2021).

Visibility

This aspect refers more to the choice of accepting cryptocurrency to generate interest in the activity and get external advertising for free (Interview 3 – see Appendix 3). This can take the form of more visits to the store, increasing interaction with social network's profiles or external press. The main difference with brand positioning is that, while the above-mentioned reason was specifically linked to the innovation of this payment method, here one looks more at the

general interest generated by the crypto world rather than specific opinion of experts in the industry. The case study here is the one of Gianpaolo Rossi, owner of the "Bar Mani Al Cielo", a café in the Bitcoin Valley of Rovereto, Italy. Gianpaolo can surely be defined as an early adopter as he started to accept Bitcoin in 2015. The impact in terms of visibility has been unexpected for him, as he received many articles from national and international press as well as TV reports, happening mostly during in 2017 and 18, during the Bitcoin boom (Interview 7 – see Appendix 3). An example of international press is an article from *gettyimages.co.uk* titles as *"A client of the bar "Mani Al Cielo" pays his coffee with bitcoins"* published in 2017 (gettyimages, 2017). Moreover, "Le iene", one of the most followed TV programs in Italy tackling political affairs and consumer issues, went to the "Bar Mani Al Cielo" to ask some questions to Gianpaolo (Le Iene, 2021). This impact is confirmed by Lugano's case with Robert Bregy confirming they were *"assaulted by calls and requests"* (Interview 13 – see Appendix 3).

Increasing sales

This point is focused on the acceptance of Bitcoin to either increase the average client spending or to broaden the client base by attracting first time clients. Some studies tried to quantify the potential sales increase by accepting BTC or other cryptocurrencies as a form of payment. According to research by Forrester Consulting, which used the Bitpay's gateway as a base for the study, accepting Bitcoin would attract on average an additional 40% to the client base (Forrester, 2020), with the main commercial effect relying on attracting new customers who prefer paying through digital currencies (Forrester, 2020). Moreover, according to Alessio from Bcademy LTD, cryptocurrency holders are high spenders compared to the average client, depending of course on how this decision is managed and on where the business is located (Alessio salvetti's interview). In fact, in Switzerland, many of the Bitcoin Suisse' clients decided to accept Bitcoin or other cryptocurrencies after clients explicitly asked for it (Interview 14 – see Appendix 3). In other contexts, this advantage constitutes more of a potential one, which will become visible when the payment adoption will become more widespread (Interview 4 – see Appendix 3). Fabio, owning the streetwear shop "100-one Freeride shop", admitted that for now the people paying in Bitcoin are always the same loyal clients (Interview 9 – see Appendix 3). Overall, this reason can surely be looked after more in the long-term rather than as an immediate effect of accepting Bitcoin as a form of payment.

Facilitating international transactions

The importance of Bitcoin for companies dealing with international organizations is also relevant. Bitcoin is both faster and cheaper in international transactions as well as representing a valid alternative to the fiat currencies especially in developing economies and politically instable countries, as pointed out above. In fact, inflation rate in some countries recently making Bitcoin a legal tender, makes it convenient for many organizations to receive the digital currency compared to the national one (Starita, 2018). Moreover, in context such as the early 2022's Russian and Ukrainian ones, Bitcoin can represent a safe asset where to store value and to receive money faster (Interview 1 – see Appendix 3). Furthermore, when dealing with a developed and stable country, an already established ecosystem such as the Swiss one can increase the demand of merchants to receive Bitcoins from clients or partners (Interview 13 – see Appendix 3).

Offering an alternative to the client

As suggested during the interview, *"if you make the life of the client easier, it is more likely that they will come more often and spend more"* (Interview 5 – see Appendix 3). Hence, the 5th most mentioned motivation for accepting Bitcoin as a form of payment constitutes simply on "offering an alternative payment method" to incentivize the client to spend within the organization or activity. Giuliano, owner of the "Ristorante Il Doge" mentions this fact coupled with the fact that integrating this software and payment method does not entail a high initial cost and it is relatively easy to incorporate (Interview 8 – see Appendix 3). Confirmed by the interview to Emanuele, the costs related to integrate this solution are not high and they are usually adapted to the revenue streams of the client, while another saving is obtained by the lower transaction costs, being almost null due to the Lightning Network (Interview 1 – see Appendix 3). On the other hand, an ordinary POS (point-of-sale) can cost up to €2,500 per year including all costs according to Shopify (Rankin, 2021). Therefore, the low and practical installation of these Bitcoin payment gateways can be effective in encouraging merchants to offer an alternative payment method to consumers.

Consumer demand

An important question surrounding this decision regards whether there would be actual effects on the sales results of an activity accepting Bitcoin. Therefore, one of the questions regarding the integration of Bitcoin among the payment alternatives was *"So far, have you noticed any commercial advantage after accepting Bitcoin or other cryptocurrencies as a form of payment?"*. In fact, one could observe the fact of potentially increasing sales being ranked as third among the most mentioned motivations for starting to accept Bitcoin in exchange for a company's goods or services. As of now, could these early adopters say that this was the case? The results, following the answer of the participants to this question, are self-explanatory, with 64% of the respondents claiming that no relevant topline increases have been experienced due to the acceptance of Bitcoin as an alternative payment method. For the rest, 14% of the interviewees declared that they could observe benefits in terms of sales, while 21% could not answer due to the unavailability of data. A more specific classifications of the comments made is presented in Figure 5.

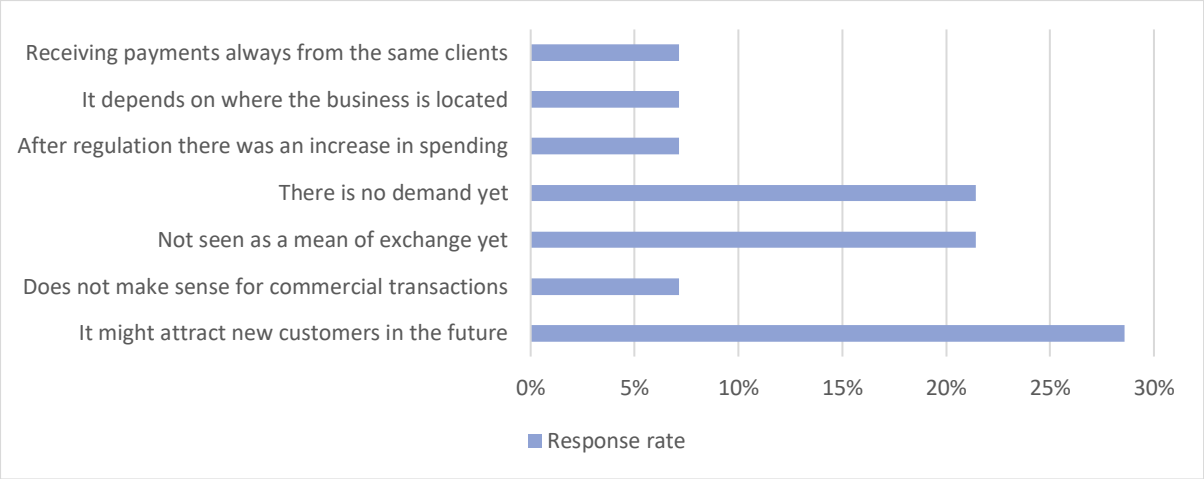

Figure 5: Answers to Question 2: *"Did you notice commercial benefits so far?"* (14 answers, from 05/03/2022 to 08/04/2022)

While being evident from the previously mentioned results that most of the respondents could not observe evident commercial benefits arising from this decision, it is of paramount importance to analyze the specific comments, which were various, to understand what people think about this aspect. The most cited aspect (29%) is that it might surely attract new clients in the future, when mass adoption is boosted and it becomes a more regular asset to spend within the real economy. Indeed, being early adopters and mostly believer in the financial

revolution that Bitcoin can bring, these companiesaim at getting ahead and be prepared to satisfy an eventual future demand. For example, Andrè Meier comments: *"At the moment, the PR effect and the resulting turnover clearly exceed the Bitcoin volume. Nevertheless, we are convinced that the acceptance of the cryptocurrency will open up an additional customer segment for the Dolder Grand."* (Interview 11 – Appendix 3). Equally weighted there were comments focusing on the fact that there is no "spending demand yet" (21%) and that digital currencies are still seen as an investment opportunity rather than as "a mean of exchange" (21%). About the first comment, the focus was on the general interest brought by this decision which led some more people to get in touch with the company, which in the end was not translated into a commercial benefit. Giuliano, for instance, talks about the fact that many reactions were noticed both on the social media pages or within the restaurant where many people: *"congratulated us, but then they pay normally by card"* (Interview 8 – see Appendix 3). Furthermore, who receives regular payments in Bitcoin, claims of receiving them always by the same loyal clients, such as Fabio stating: *"for 7 years, always the same clients paid in Bitcoin. I had between 30 and 40 transactions, but always coming from the same people"* (Interview 9 – see Appendix 3). Completing the analysis of the negative and neutral comments, the statement "does not make sense as a mean of payment" represents a view being against the specific employment of Bitcoin as a form of payment. Yves Longchamp describes Bitcoin as less scalable, requiring more time and more expensive compared to other digital currencies, claiming: "For pure payment/commercial purposes, I wonder if Bitcoin makes a lot of sense. It's not a unit of account, it's a pure add-on." (Interview 3 – see Appendix 3).

Interestingly, the positive answers came from those respondents working in more international environments. Alessio claims that it is possible to increase sales by attracting a new clientele "depending on where you are located" (Interview 10 – see Appendix 3). Managing Bcademy LTD in London and being part of a company operating mainly in Italy but also in more crypto-friendly jurisdictions such as Switzerland and the UAE, Alessio could observe a higher demand from customers. Robert Bregy also showed satisfaction from the digital currencies' adoption in Lugano after the integration of a public municipal Blockchain and the legal tendering of the *Luga Coin* (stable coin pegged to the CHF) as well as, more recently, Bitcoin and Tether. Speaking of numbers, Robert describes the results obtained by the municipality of Lugano with their stable coin: *"Nowadays, we have about 6 million CHF spread among the users' wallets as well as 150 merchants accepting this payment token"* (Interview 13 – see Appendix 3).

How to accept Bitcoin payments

The Bitcoin payment industry shall be analyzed to understand how companies can accept crypto payments and who are the different players constituting this network. Research realized in 2017 by the *Cambridge Centre for Alternative Finance* described the different actors operating in the cryptocurrency industry. Overall, companies involved in this industry were showed to be concentrated in Asia, with 36% locating their headquarters in the continent. Europe and North America find themselves at the same stage, with 29% and 27% respectively (Rauchs, 2017). Focusing on payments, a focus will be given to *miners and wallets, ATMs, payment gateways (comprising custodial and non-custodial solutions) and companies accepting cryptocurrency.* However, other small emerging players are present, including non-profit associations, educational institutions, and cryptocurrency lenders (Rauchs, 2017). Those will not be analyzed in-depth as they are less relevant considering the scope of the research. However, they are worth mentioning as they show a high growth, with the crypto lender Genesis increasing their outstanding loans by 245% YoY (Schei, 2022). All the components of the crypto payment industry described above where either mentioned or directly represented by the interviewees. The link of this analysis to the overall research aims at diving deeper on the process of accepting payments in Bitcoin as described miscellaneously during the interviews.

Miners and Wallets

Miners, as already mentioned in chapter one, introduce new units in the market. Figure 8 describes the distribution of the IP addresses of Bitcoin's mining in the world. (Venkataramakrishnan, 2021). As one can observe, China dominates, although decreasing the energy consumption for mining between 2019 and 2021. USA and Russia follow with a considerable difference (Venkataramakrishnan, 2021). Wallets are fundamental as they provide storage for this value. A difference with tangible wallets is they do not store currency, but they serve to digitally record transactions in the blockchain (Mehilli, 2018). They allow crypto owners to send and receive digital currencies while keeping them under control (Rauchs, 2017). A basic element concerning wallets is the private key, which is the password needed by the user to access the wallet and, therefore, money. Wallets can take different forms, being paper, hardware and online (Coinbase, 2022). The first two methods constitute a way to store

cryptocurrencies such as Bitcoin offline. In paper wallets, the private key is printed offline, often showing a QR code which can be used to send or receive these assets. In the second case, the hardware wallet, the keys are stored in a thumb drive device, such as a USB key, which can be connected to a computer only when the owner has the intention to access their assets. Both offline solutions present pros and cons. The advantages are given by the fact that, being offline, it is harder for malicious individuals to access the cryptocurrencies. However, being physical wallets, they can be lost or destroyed as well as they make it harder for the user to employ them. As an alternative, online wallets, offered by many exchanges, offer a faster way to store cryptocurrencies with a relatively easier accessibility although scarifying security in comparison to offline solutions. Online wallet's data show 81 million units in 2022 considering the main platforms, representing a significant growth compared to 2021 (Statista, 2022). Among the considered sample, the majority (64%) used an offline wallet considered as "more secure" and "more in line with Bitcoin's philosophy" being decentralized and P2P. El Hadji Ndiaye , co-founder at Bitcoin People, a company offering a custodial and non -custodial solution to accept Bitcoin as a payment, describes the online wallets as a banking-like concept (Interview 1 – see Appendix 3), meaning that you do not really own the currency as it is stored in an account which is "not owned by the user" (Interview 4 – see Appendix 3).

Indeed, a further ramification of wallets is between custodial and non-custodial. Custodial wallets, as mentioned by El Hadji, are the ones offered by cryptocurrency exchanges, the most important ones being Binance (Statista, 2022). They offer third party services owning the wallet and, therefore the cryptocurrencies acquired by the user and stored there (Mehilli, 2018). On the other hand, non-custodial wallets provide the user with private keys. Therefore, they provide the owners with full control (Šafka, 2014).

ATMs

ATMs constitute an alternative for exchanging fiat currencies with cryptocurrencies and vice-versa. They appear as ordinary ATMs but, instead of connecting the users with their bank account, they are linked to an official cryptocurrency exchange (Mehilli, 2018). The first crypto ATM ever was introduced in 2013 in the "Waves Coffee Shop" in Vancouver and, since then, the number of Bitcoin ATMs has been dramatically increasing. According to recent research, there are currently 5,041 BTC ATMs around the world (Maddie Shepherd, 2020).

The first Bitcoin's ATM in Italy was introduced in the Trentino-Alto Adige region by Gianpaolo Rossi, owner of the "Bar Mani Al Cielo 2.0", in 2017 (Interview 7 – see Appendix

3). Gianpaolo was interviewed as part of this research, where he described his experience with it. To introduce it in his case, he had to create a wallet and through that, people could come at his café, insert euros and receive BTC on their own wallets. Firstly, the withdrawal was not capped, but later, he set a limit of €500 because "people were starting to come with higher amounts" and that would become a problem for him as he "had to then deposit the cash received in a traditional bank account", created by him for this purpose (Interview 7 – see Appendix 3). Various national and international articles were written on this decision, including from important financial journals such as Yahoo Finance (Wirdum, 2018). However, he removed the ATM following the Italian regulation on anti-money laudering, D.Lgs. 125/2019 following a EU directive 2018/843 (Giordana, 2019), as the money exchange were increasing, and this could pose a problem for him personally (Interview 7 – see Appendix 3).

Another experience emerged during the interviews with Bitcoin ATM was in the Dolder Grand Hotel AG in Zurich. Andrè Meier described their experience with this tool, which was installed about one year after stating to accept Bitcoin as a form of payment (Interview 11 – see Appendix 3). Since August 2020, about 300 transactions took place, mostly when digital currencies were rising in value. However, it also represented a marketing tool for the hotel, where interested people could come and exchange fiat currency for crypto and vice-versa, eventually cross-spending in the services offered by the hotel (Interview 11 – see Appendix 3).

Payment Gateways

If miners put the currency in circulation, wallets store this value, and ATMs serve as a direct and physical way for people to exchange their fiat currencies with Bitcoin (and vice-versa), payment gateways can be considered as an enhancement for companies or merchants to accept Bitcoin as a form of payment. They serve to create dynamics between users and merchants accepting Bitcoin (Mehilli, 2018). These systems were found to be equally distributed in Europe and Asia Pacific, both incorporating 33% of the companies operating in this sector (Rauchs, 2017). North America rates lower in this field with 19% of the observed companies being born in its territory (Rauchs, 2017). Linked to the difference between custodial and non-custodial wallets described above, Emanuele Magrini, Business Developer at Bitcoin People, speak about the two solutions they provide, one custodial and the other non-custodial. The latter is provided by a partnership with LinkIt, where this company directly converts the Bitcoins in the fiat currency, holding their BTC in their own wallets. Therefore, they offer this custodial solution. On the other side, Bpay, offered directly by Bitcoin People, allow the

merchants to directly receive Bitcoins on their private wallets, without converting them and having full control over them (Interview 1 – see Appendix 3). The same solutions are offered by Bcademy LTD, a recent company created for this and other purposes in the UK by Alessio Salvetti and other partners (Interview 10 – see Appendix 3). During our interview, Alessio speaks about the increasing need for merchants to know more about Bitcoin and how the demand is increasing, with their clients being mainly located in Switzerland and the UAE. However, the business is increasing also in the UK, being the reason for the creation of Bcademy (LTD). Interestingly, both Bcademy LTD and Bitcoin People provides consulting services to guide the client over the software and to maximize their experience. Moreover, they offer different packages at different prices, with the option to insert add-ons for an increasing price, to adapt to different needs of their various clients. For instance, Emanuele speaks about an initial price for the Bpay software, which is relatively affordable, but then the tailoring and upgrades of this technology constitutes an important lever for these companies (Interview 1 – see Appendix 3).

Other examples of non-custodial solutions are those offered by the main crypto exchange platforms, with Binance already mentioned as the main one. Coinbase and Bitpay are other important examples, particularly leveraging on facilitating the direct conversion for merchants (Coinbase, 2022).

Who is currently accepting payments in Bitcoin?

Hence, after a brief analysis on consumer demand and an overview on the mechanisms allowing Bitcoin's circulation and storage, an external analysis of the current state of Bitcoin's acceptance as a form of payment is provided, considering both the publicly available secondary data and the results stemming from the analysis of the sample.

Countries

Figure 9 shows the countries where Bitcoin was traded the most on online exchanges in 2020 (Statista, 2021). This represents a confirmation of the primary role US plays in Bitcoin's acceptance. Indeed, according to Fundera, 2,300 businesses accepted Bitcoin in the USA in 2021 representing about 30% of the merchants accepting Bitcoin as a form of payment globally (Sraders, 2021). Russian role is also not to be neglected, also considering the recent geopolitical developments, which will be better discussed in the chapter six, related to future trends.

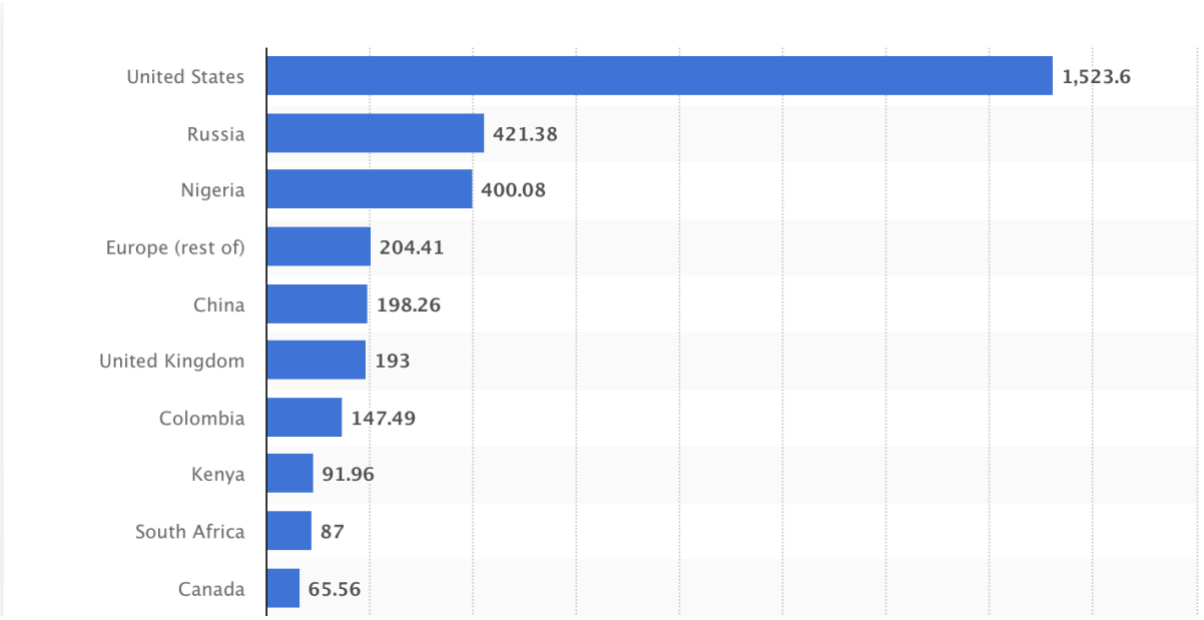

Figure 6: Top 10 countries by Bitcoin trading volume on online exchanges in million USD (Statista, 2021)

Additional analysis can be deemed on the role of developing economies in promoting Bitcoin's circulation, confirming Bitcoin and the Blockchain technology's importance in providing financial services in those countries where relying on traditional banking does not constitute the normality. An example is provided by Nigeria, Colombia and Kenya having respectively 36% (British High Commission Abuja, 2021), 15% and 44% of unbanked population within their territories (Statista, 2021). Going deeper into Bitcoin acceptance by country, Figure 10 below shows a density map representing the countries in which the highest venues accepting Bitcoin are present. The types of businesses included in this representation are ATMs, entertainment, food, lodging & transport, shopping and other (Sabah, 2020). The website in which these data were retrieved is called *coinmap.org*, which collects information about venues accepting Bitcoin providing maps and graphs with names, type of business and geographical location with longitude and latitude (Coinmap, 2022). The map below highlights again the fundamental role of USA and Europe adding however new countries in South America, which were not counted in the Figure 10 since some updates were more recent. An important example is El Salvador which announced officially on September, 2021 Bitcoin as a legal tender, meaning that citizens can pay taxes in BTC and that businesses cannot restrain from accepting it as a payment (PwC, 2021).

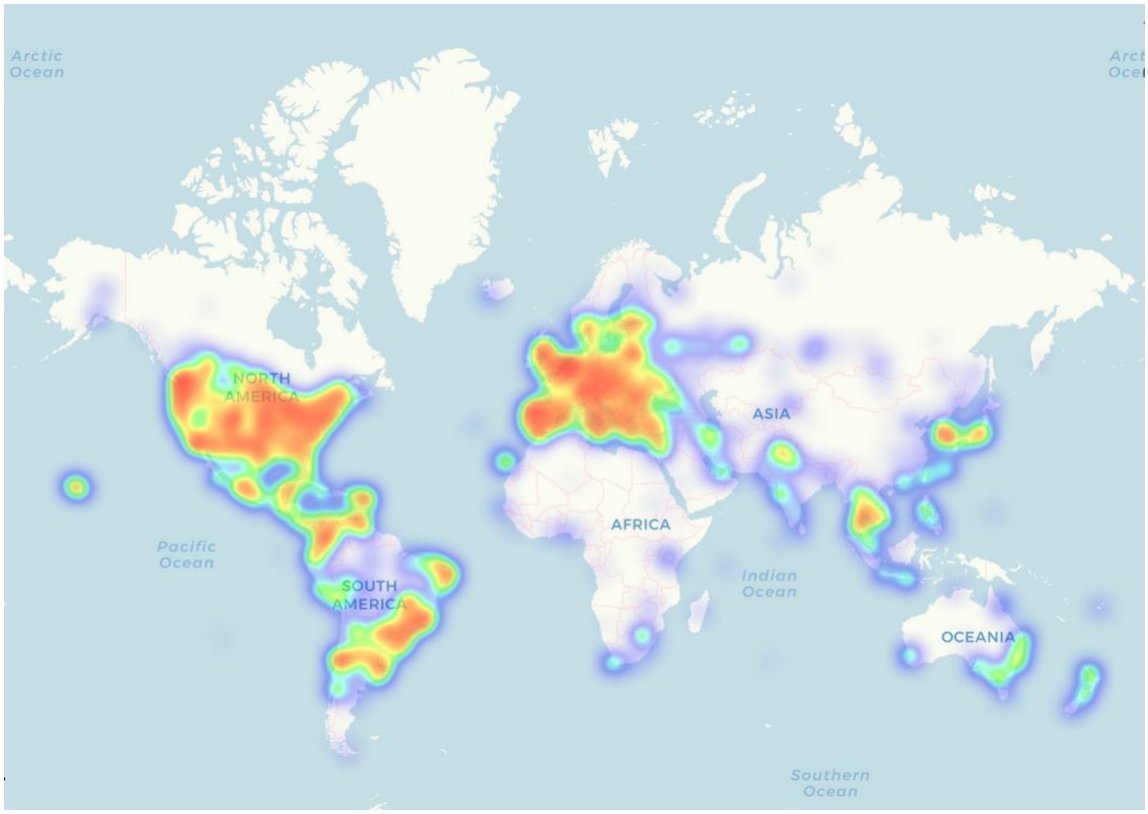

Figure 7: Bitcoin's acceptance density as of April 2022 (Coinmap, 2022)

To confirm the thesis about emerging economics developed based on previous data, El Salvador too presented a very high percentage of unbanked population, reaching 71% in 2021, while also being one of the countries with the lowest income per capita in South America (Statista, 2021).

Industries

Focusing on Bitcoin's acceptance at an industry level is also important to understand where this technology can be employed to match both the demand and offer side.

El Hadji, co-founder of Bitcoin People, states that the favorable industries over Bitcoin acceptance are e-commerce, representing 32% of the whole commerce in Europe, and import-export businesses, relying on the low cost and high speed of Blockchain technology facilitating international payments (Interview 4 – see Appendix 3). This favorable e-commerce view is shared by Alessio, co-founder of Bcademy LTD, operating internationally and based in London, UK

Other research points out more specific categories for venues accepting Bitcoin. Mehilli (2018) lists a ranking of specific business types accepting Bitcoin in Italy, with retail shops, services

and tourism-related companies ranking on top 3, and accounting for almost 70% of all the merchants present in this list (Mehilli, 2018). This can be confirmed by business type distribution of the sample taken as basis for this study. Among my sample, 25% were tech companies, providing software to other businesses for them to receive BTC. In turn, they also accepted it as a form of payment. For the rest, about 70% of the participants fell into the "services" category, comprising hotels, restaurants, cafés, and a dentist.

Cities

Bitcoin and cryptocurrency adoption is concentrated in innovation clusters due to the low awareness and the current stage of acceptance (Starita, 2018). Two important crypto valleys are in Zug, Switzerland (Tapscott, 2016) and Rovereto, Italy which were used as a basis for contacting companies and experts to form the qualitative research for this report. In addition to that, the city of Lugano, located in the Italian Swiss Canton is becoming a relevant context for both cryptocurrency holders and startups by recently rendering Bitcoin as well as the stable coin Tether legal tenders (Nasdaq, 2022). These realities were examined during the interviews performed for this research. In fact, 25% of the companies operate in Rovereto, widely recognized as the Italian cryptovalley (Starita, 2018). Moreover, this research has the chance to incorporate an official interaction with Robert Bregy, Lugano's municipality counselor as well as member of Lugano Living Lab and therefore, one of the key figures for the recent Lugano's Plan B (Interview 13 – see Appendix 3). Furthemore, two of the companies interviewed are located in the area between Zug and Zurich (Tapscott, 2016). In this paragraph, those three crypto centers will be briefly described in their role as innovation ecosystems.

Rovereto and the Trentino region, located in extreme north of Italy and famous for hosting the Alps are considered as a Bitcoin Valley. According to official data in 2018 there were already 45 activities accepting Bitcoin and 18 of them were in Rovereto (Starita, 2018). Rovereto is a small village in province of Trento counting about than 40,000 people according to the Italian Official Statistic Centre (ISTAT, 2020). Other research developed in this area describe this process as "tech optimism", a concept that brings individuals and groups to focus on how technology can improve the life of the community (Starita, 2018). This mentality is surely widespread in Rovereto where the company *Inbitcoin*, the first Italian BTC payment gateway, was founded in 2016 (inbitcoin, 2022) as well as other activities related to the digital currency. Another example is *Compro Euro*, which was the first physical shop where to buy Bitcoin,

founded in 2017 (Compro Euro, 2022). This, in turn, led many traditional activities in the town to be aware and finally accept Bitcoin as a form of payment. The example of Gianpaolo, owner of the "Bar Mani Al Cielo" and installing the first Bitcoin ATM in Italy, was already mentioned. Within the interview sample, also Giuliano owning a restaurant called "Ristorante Il Doge" (Interview 8 – see Appendix 3) as well as Fabio, managing a streetwear shop called "100-one Freeride shop" (Interview 9 – see Appendix 3) were interviewed. During these discussions, both merchants confirmed that hearing about in the context of Rovereto as well as finding themselves in an ecosystem facilitating the acceptance of Bitcoin helped them to acknowledge about it before and become early adopters. Giuliano mentioned the fact that him and his father, both managing the restaurant, were introduced to Bitcoin by the people of Inbitcoin (Interview 8 – see Appendix 3). Fabio mentioned the fact that, being the shop located in Rovereto, the commercial results and the general awareness about Bitcoin were already established, adding that: "If I was not in Rovereto, I probably would have not introduced Bitcoin as a form of payment" (Interview 9 – see Appendix 3). Another interview, regarding Fabio Valli, dentist operating in Brescia, Lombardy region, mentioned instead the non-existent awareness of the area where he lives, contributing the fact of having still null results at the commercial and marketing level (Interview 5 – see Appendix 3). Hence, one can conclude that the ecosystem and the so-called tech optimism really facilitate the spread of technological innovations by raising awareness and therefore accelerating adoption.

A similar, but in a way more advanced, outlook can be found in Switzerland. However, a premise about Switzerland must be made. Indeed, this country can be defined as "crypto-friendly", as confirmed by the Robert Bregy (Interview 13 – see Appendix 3), due to its low-tax policy, general business-friendly environment, high quality of life and stable political environment (Crypto Valley, 2022). These conditions already facilitate the entrance of start-ups operating in the sector of cryptocurrencies and their acceptance as a form of payment.
Zug, located in the heart of Switzerland, is famous for its low-tax regime hosts almost half of the 960 crypto start-ups born in Switzerland (Financial Times, 2022). In this context, it is not a surprise that a well-established ecosystem would born. An example is provided by Seba Bank AG, founded in 2018 and obtaining the license from the Swiss authorities in 2019, being a bank specialized in deposits and financial services on digital assets, including cryptocurrencies (Seba Bank, 2022). During my interview with Yves Longchamp, Head of Research, there was the opportunity to examine in-depth the demand for banking services related to cryptocurrency. Yves confirmed indeed that many family businesses in the Zug area are investing heavily on

Bitcoin or other cryptocurrencies and the bank is providing them valuable services by making a price, offering derivative products such as options and checking the source of the Bitcoins, to prevent the currency being purchased from suspicious activities (Interview 3 – see Appendix 3). In addition, Andrè Meier, Managing Director at Dolder Hotel AG, luxury hotel located in Zurich, confirmed that the representatives of the Zug crypto valley were fundamental in letting him understand the opportunities related to Bitcoin and, therefore, he integrated this payment option as part of the digitalization plan of the hotel (Interview 11 – see Appendix 3).

Lugano, counting about 62,000 inhabitants and located in the Italian speaking canton of Switzerland, recently announced a partnership with Tether, the most famous existing stable coin, to introduce both Tether and Bitcoin as a legal tender announcing it during a conference called "Plan B" at the beginning of March 2022 (Alpher, 2022). However, Lugano's journey to become one of the European crypto capitals started in 2020, when they introduced a token pegged to the Swiss Franc called LUGA. This token was created for the purpose of being spent in public services in the city as well as for merchants accepting it with the main purpose of incentivizing the local commerce (Robert bregy). As confirmed by Robert Bregy, this journey served to raise awareness about the benefits of Blockchain technology in order to get customers and merchants ready for this new step, being the above-mentioned legalization of Tether and Bitcoin. The results related to the LUGA Token have been remarkable with half a million of CHF in value circulated since the introduction of the local stablecoin and 150 merchants accepting it as a form of payment (Robert Bregy).

Chapter Three: Re-deploying Bitcoin revenues

In the previous chapter, the motivations and a brief focus on the commercial aspects were developed. However, after accepting Bitcoin businesses should consider an important aspect related to the decentralization, being the volatility caused by the complete reliance of the value on the supply and demand law, increasing the volatility of this instrument (Shah, 2021). A careful examination of the volatility is therefore developed below. Hence, the different ways to use this revenue, considering both the above-mentioned volatility as well as the currently limited tradability, are examined still based on the answers of the respondents. The alternatives explored are *holding, converting them to fiat currency, re-using them for paying suppliers or employees, hedging against a potential loss in value or re-investing them.* A combination of primary data gathered from the qualitative research supporting this analysis as well as secondary public data will be used to rank and classify the above-mentioned options.

Volatility

Volatility is the basic measure of risk related to a financial asset, being important in quantifying investor exposure (Nekhili, 2021). The volatility of Bitcoin as well as other cryptocurrencies in general is one of the most discussed aspects, also representing one of the main barriers for a wider adoption of them. For blue chip companies, for instance, being highly exposed on cryptocurrencies might be riskier (e.g., 10% of Balance Sheet in Bitcoin) since, considering the volatility, their ratings might be affected (Interview 15 – see Appendix 3). Looking at Bloomberg's metrics shared during the interview with Jason Freeman, ex-Goldman Sachs investment banker in London, one can observe the BTC volatility index, measured based on tradable option prices related to this asset, amounts to a variance of 77.99, much higher compared to the VIX (volatility index of all the equity markets in the US) reaching 24.24 as of the interview's date, 16th of April, 2022 (Interview 15 – see Appendix 3). Moreover, research by Deutsche Bank pointed out the fact that is common for Bitcoin to trade within a spread of 10% within a 24-hour period (Laboure, 2022) confirming the fact that digital assets like Bitcoin do not incorporate any intrinsic value by their price is derived by market forces, such as supply and demand (Shah, 2021). Of course, for some investors the large swings linked to Bitcoin represent a threat while others see opportunities. Gianpaolo, accepting them as a payment since 2015, claims that *"you must be ready to jump on the rollercoasters"* (Interview 7 – see Appendix 3) while also focusing on the long-term value increase, with Bitcoin performing ten

times better than NASDAQ in the last decade (Sriram, 2021). Since May 2013, Bitcoin's price increased more than 24,400% while an ounce of gold raised his value by 25% over the same period (Patel, 2022)

A strong debate on the factors driving Bitcoin's high volatility has been opened in the financial literature over these years. Walther et al. (2019) finds that the real economic activity is the most impacting exogenous driver of crypto volatility (Walther, 2019). Therefore, the correlation between Bitcoin's price swings with other real assets or market indexes shall be explored. Correlation can measure from -1.00 to 1.00. A positive correlation means assets have been moving in the same direction, while a negative correlation means they moved in the opposite direction, with a larger absolute value meaning a stronger relation between the two observed assets (Rand Kwong Yew Low, 2016). Speculation has also been mentioned during my interviews with El Hadji claiming that *"when speculation will end, Bitcoin's price will be more stable"* (Interview 4 – see Appendix 3). In fact, Cheah and Fry (2015) found that Bitcoin contains a significant speculative component with two important factors such as investors sentiment and trading volume to be considered (Cheah, 2015). While the former is largely considered to be linked to Bitcoin's high variance (Baig, 2019), the latter was demonstrated not to be such an important factor by other studies (Blau, 2017). Additionally, Sabah (2020) finds that business venues announcing the acceptance of Bitcoin is a significant drive of its volatility (Sabah, 2020). In general, being a novel asset and a potential changer in the global financial world while considering the structure of this asset, the debate on its volatility is widely discussed in the financial world, with many new studies attempting to model these price swings.

Bitcoin's correlation with other assets

First, a thorough analysis of the observed correlations between Bitcoin and other assets or market indexes is going to provided. The volatilities chosen for this comparison are NASDAQ, gold, Ethereum and fiat currencies. As one must be aware, correlation is not causation. Therefore, it should not always be confused for an actual trend. Therefore, the reasons for the choice of the potentially correlated assets will be provided.

Bitcoin's correlation with the real economy

An overview of Bitcoin's correlation with the real economy is described by a recent study from Morgan Stanley, highlighting the fact that Bitcoin has been positively correlated with some of the main equity markets, as shown by the graph below (Shah, 2021).

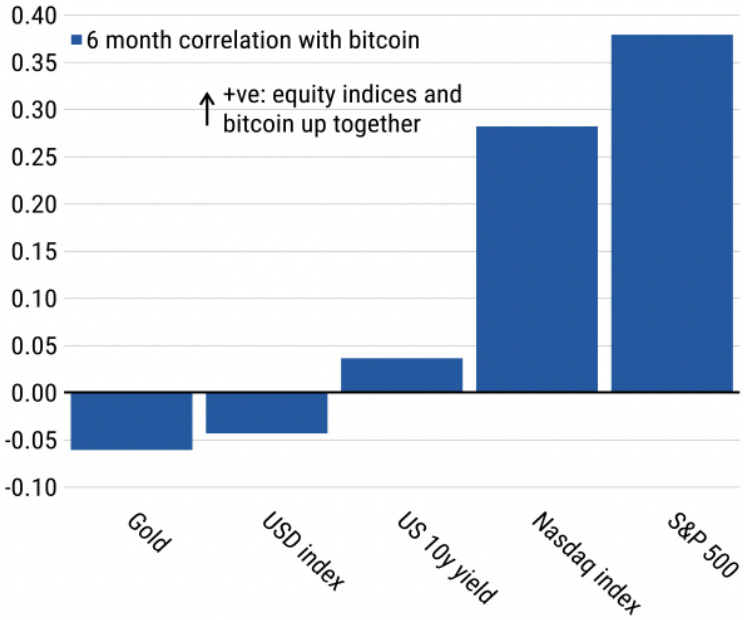

Figure 8: Bitcoin's correlation with real assets (Shah, 2021)

Research from 2020 points out that Bitcoin's main characteristic is related to the fact of being a supranational entity, therefore representing an alternative for investors to invest in case the economy is experiencing a negative moment (Sabah, 2020). For this reason, a negative correlation to the Nasdaq Composite Index shall be expected. However, one can look at the graph above, recently published by Morgan Stanley and rather observing a high correlation with this index. However, correlation should be contextualized according to the moment. Martin Green, CEO of Cambrian Asset Management, claims *"Lots of people look at correlations as if it is a great number in and of itself, but what is really important is that there are times when things are very highly correlated, and there are times when they are not; and there are times when they are correlated when the market is going up, or only when prices are going down,"* (Rapoza, 2022). In fact, compared to the old vision of Bitcoin as anti-system money, some aspects have been evolving, with the increasing company adoption contributing to relating it more and more to other technological stocks (Rapoza, 2022). Therefore, current evolutionary trends make it more and more comparable to the Nasdaq Index (Ossinger, 2022).

The same study published in 2020 points out that positive correlation with gold should be expected, as both assets serve the purpose of hedging against potential economic backdowns (Sabah, 2020). However, Baur (2021) finds that this expectation is not respected, hypothesizing substitution effect, people buying Bitcoin and selling gold, or catching-up phenomena, people aiming at giving equal weights to the two assets within their portfolio (Baur, 2021). The table above therefore shows a reversing trend even on this expectation.

Commenting on the negative correlation with the USD Index, one should look at the *interest rate partity rule* for fiat currencies, stating that the higher the interest rates in one country compared to another one, the higher the appreciation of the national currency compared to the other benchmark currency (Interview 15 – see Appendix 3). Since interest rates are projected to increase by 2.5% by the end of 2022 (Fitzgerald, 2021), the dollar is appreciating, with the Bitcoin/USD ratio decreasing by about 28% in the last six months, with the Bitcoin/EUR decreasing by not much less (24%) (Investing.com, 2022). However, with 80% of the world trade volume denominated in USD (Interview 14 – see Appendix 3), a negative correlation should be expected since Bitcoin theoretically serves the function of a safe asset during crisis time.

Correlation to other cryptocurrencies

Being the reference for the market related to digital currencies, one should expect Bitcoin's correlation with other cryptocurrencies to be mostly positive. Although, this should not always be the case because sometimes asset values are affected by different dynamics. However, in general, Bitcoin may constitute a general indicator of the performance of the crypto market. BTC was indeed found to test a positive correlation with other crypto currencies, testing higher with ether. The graph below shows this specific relationship between the two major currencies in the market, also highlighting some specific moments causing their price swings (Laboure, 2022).

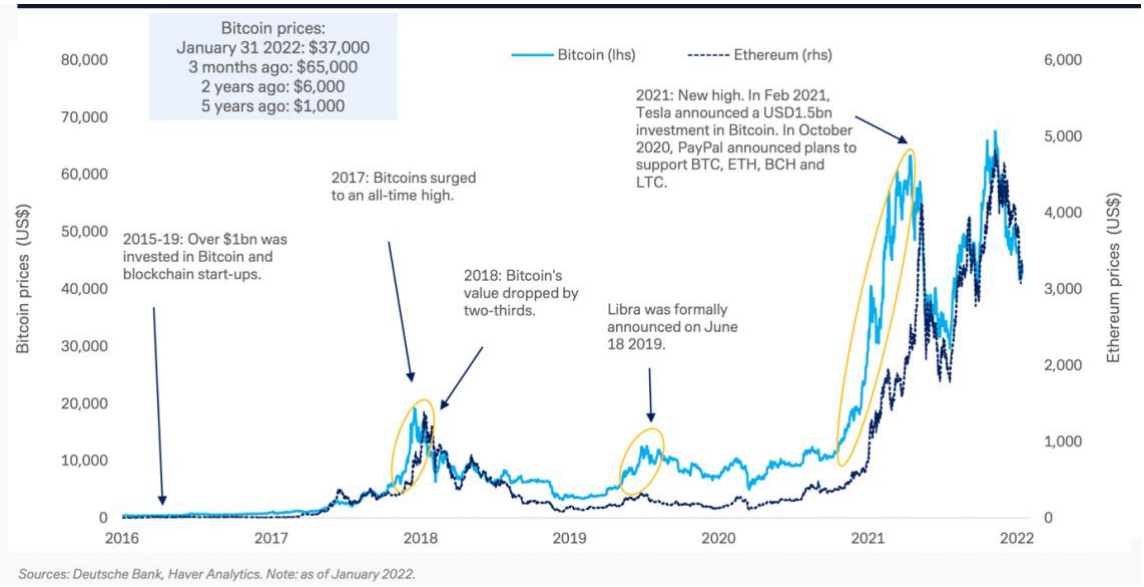

Figure 9: Bitcoin's correlation with Ethereum (Laboure, 2022)

Business acceptance and volatility

Observing the case of Microsoft which started to accept payments in Bitcoin in 2014 for certain digital products, one can notice an increase in their volatility by 29% on the week following the press release compared to the week preceding it (Sabah, 2020). This raises the question: *do business venues accepting Bitcoin increase its volatility or will wider acceptance enhance its stability?* Sabah (2020) argues that an important factor to consider is investor attention, which augments the trading volume and, therefore, increases price swings (Sabah, 2020). Starting from the case mentioned above, this study concludes that, by accepting Bitcoin as a form of payment, large business venues attract investor attention and a higher liquidity in the market by stimulating Bitcoin holders. Hence, they conclude that the number of companies accepting Bitcoin can be a significant predictor of its standard deviation (Sabah, 2020). However, this might be related more the fact that accepting Bitcoin as a form of payment is still seen as a risky experiment since the market still has to decide whether it could really become an alternative financial system (Hajric, 2021). Moreover, the market is still a niche and not fully understood one, that is why news from important corporations as well as well-known figures, such as Elon Musk can drive prices through digital communications. In addition, crypto can be traded globally and 24/7, therefore many global news and announcements can have an impact on Bitcoin price (Langridge, 2021). Overall, many argue that Bitcoin is still a speculative asset more than a mean to exchange value. One could argue that if it was globally and widely taken

as a payment, the volatility could decrease, although predicting future macroeconomic and geopolitical dynamics, especially concerning a novel asset such as Bitcoin, is not fully feasible (Interview 15 – see Appendix 3). A fact is that, as of now, volatility represents a challenge for business venues taking Bitcoin as a payment, especially large corporations where Bitcoin, one day, might constitute a relevant share of the total revenues. Therefore, exploration of different re-deployment methods for this currency is necessary to analyze how these companies and merchants are managing the volatility of this currency.

Re-deployment of Bitcoin's revenues

One of the interesting aspects to analyze on Bitcoin's payment is how to manage this revenue. Being highly volatile, as described in the paragraph above, and not liquid enough to be spent in the traditional economic system, this might constitute a challenge for these companies or merchants introducing this payment alternative.

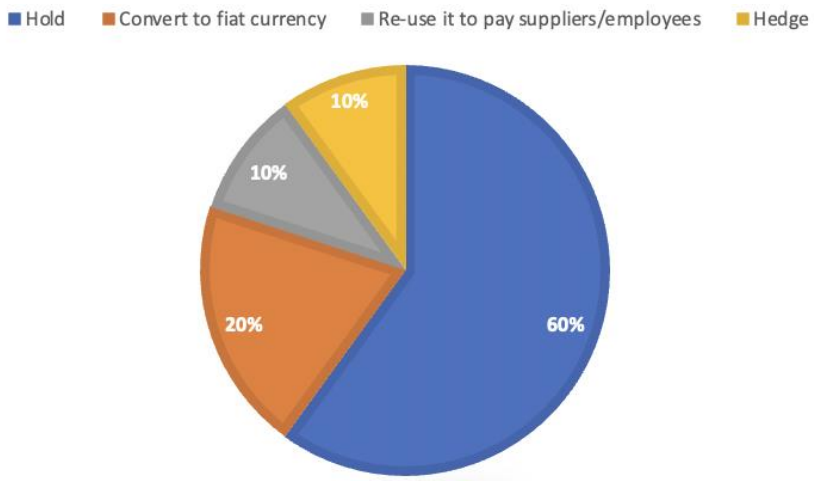

Figure 10: Answers to Question 3:*"How do you re-deploy the revenue in Bitcoin?"* (21 answers, from 05/03/2022 to 08/04/2022)

When asking these questions to my sample interview, the answers described by the pie graph below were given. To contextualize these results, the sample analyzed comprised 67% of micro or small-sized enterprises, according to the OECD standard (OECD, 2022).

The option of holding the Bitcoins while waiting for an appreciation of this asset was the preferred one of my respondents, with 60% of them answering that they hold at least some part

of this revenue. Secondly, directly converting Bitcoins into the fiat currency of reference is also used through the non-custodial solutions described in the previous chapters, with financial intermediaries and exchanges storing the cryptocurrencies into their wallets and providing the merchants with the corresponding value in fiat currency. This can be useful if the revenue share in Bitcoin is relevant, although one could observe from the first paragraph of this chapter that, for now, this has not been the case. Moreover, looking at its volatility, this option might be employed to avoid sudden negative price swings. As mentioned before, large organizations might need to do it for rating reasons. Then, using this revenue to pay employees or suppliers might be an option if the company is operating in an environment where there is wider acceptance of Bitcoin. The tradability of Bitcoin, however, remains very limited (Laboure, 2022) and within the economic and political contexts explored, being Italy and Switzerland mainly, a strong network of suppliers and employees willing to accept Bitcoin as a reward is still not present. However, these two countries can be representative, at least in Europe, as they incorporate the largest countries for Bitcoin's acceptance and trading in the continent (Statista, 2021). Finally, the option of hedging against Bitcoin volatility by, for instance, purchasing options was mentioned only once by Yves, offering these kinds of products, to large retail investors in the Swiss context (Interview 3 – see Appendix 3). However, the revenue size among the interviewees was still not big enough to justify a costly financial hedging, where still secondary data could be found on the usage of these instruments even to balance large crypto investments.

Hold

Keeping the revenue in Bitcoin and hoping for an increase in the value of this asset was the major re-deployment path among the businesses interviewed. There are two main elements to keep in mind to provide a better view of this result. First, half of the organizations examined are considered as micro enterprises, having less than 10 employees (OECD, 2022). Then, most of the respondents declared to receive few payments in Bitcoin, therefore not constituting a large share of what these venues get as a revenue.

On the first point, the fact of not being a large organization helps in allowing the owner to be flexible in deciding whether holding or converting this amount in the fiat currency, which can in turn be directly re-invested in the company. However, a café or a restaurant having few employees and one or two owners can easily adapt the strategy according to the general market trends or the current need of the company, for instance whether there is need for current

liquidity (Interview 5 – see Appendix 3). Furthermore, a simpler structure is implied for these organizations due to their size. Of course, a multinational corporation would have a CFO who would carefully employ a re-deployment strategy (Interview 10 – see Appendix 3). Lastly, these companies are not affected by any external rating or reputational issues, being freer to decide how to manage these assets on their balance sheet.

About the relative share of Bitcoin's revenue, the interviewees declared that still a few people paid them in BTC, while many asked for more information on it. Therefore, the curiosity dominates the demand to spend cryptocurrencies in this moment. A threshold which was suggested is 5% of the topline. If a company earns more than this share in Bitcoin, they should think about converting a part of it as there is the need to pay the periodic operational expenses (Interview 10 – see Appendix 3).

Overall, the performance of Bitcoin has proven to be very positive so far as already pointed out. The graph below provides a comparison of the main cryptocurrencies performance in 2021 compared to other assets, as shown by Figure 15.

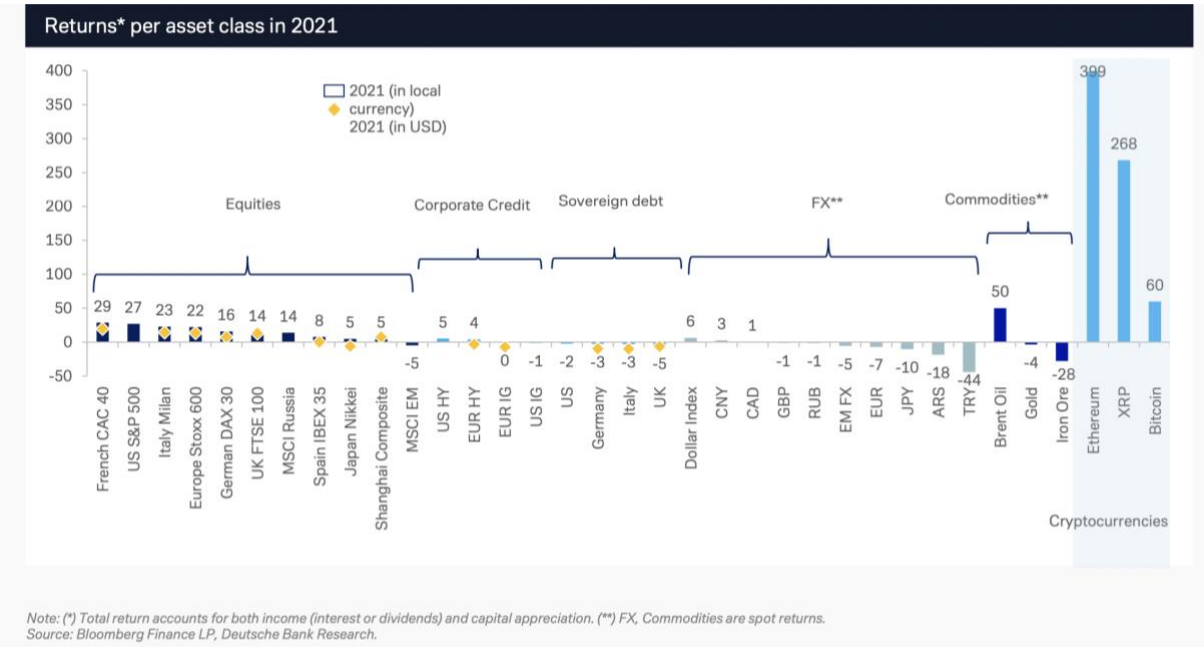

Figure 11: Cryptocurrencies recorded strong performance in 2021 (Laboure, 2022)

Convert to fiat currency

The second option which is mainly considered nowadays for the usage of revenue in Bitcoin is the direct conversion to the fiat currency as 19% of the respondents pointed out they chose to

convert the totality or part of the value received in BTC. However, half of them claimed that they both hold or convert depending on the current market state. For example, the need for liquidity can surely influence that decision as well as the current price swings (Interview 5 – see Appendix 3). Another reason to receive the amount in the national currency can be the visibility of the organization. Andrè Meier, managing director at Dolder Grand Hotel in Zurich, described their approach to Bitcoin payments by specifying that they adopted a solution allowing them to quickly receive the correspondent amount in CHF at the moment of the transaction, adding that, for now, they prefer not to keep cryptocurrencies in their balance sheet (Interview 11 – see Appendix 3). Being the Dolder Grand Hotel a large company and potentially receiving considerable amount in cryptocurrencies (their average price for one night is higher than €700 looking at hotels.com), it is reasonable for them to worry about the value in their balance sheet at the end of the accounting period. Furthermore, the managing director confirmed that, at the current state, they consider this decision to be more of a "PR tool" (Interview 11 – see Appendix 3).

Another potential reasoning behind directly converting could be the uncertainty about this decision. Hence, converting the amount in fiat currency can represent an initial step towards the world of crypto payments. One respondent indeed mentioned that, as a company policy, they decided to directly convert everything in EUR, while waiting for market signals and possibly changing this rule in the future (Interview 8 – see Appendix 3). In fact, this may constitute a way for an organization to explore this solution, which is not expensive to integrate, and checking some aspects such as the user experience, the demand or potential value increases. As was suggested, offering an alternative payment solution to the client cannot be detrimental for the business and, by directly converting, there is the option not to change the business model or to influence the balance sheet since the first moment.

Paying suppliers or employees

This solution was mentioned just twice, as there is wide consensus that many economies still do not constitute a proper ecosystem for this re-deployment path (Laboure, 2022). In fact, as we can observe from the graph below, Bitcoin is still not traded as the main fiat currencies (Laboure, 2022).

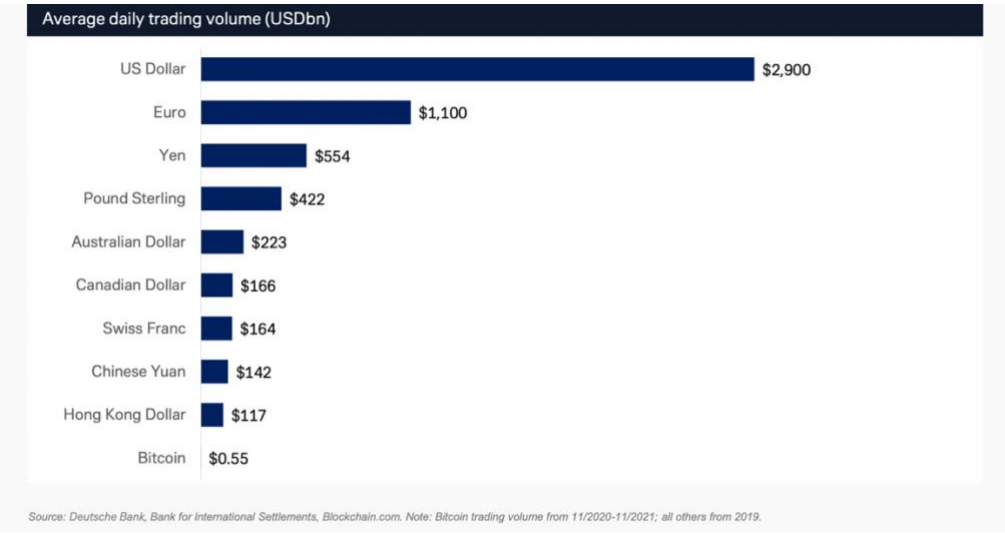

Figure 12: Tradability of Bitcoin remains limited (Laboure, 2022)

An attempt was done by Gianpaolo, who tried, over the years, to involve suppliers to accept them or to convince the employees to receive a portion of their salary in BTC (Interview 7 – see Appendix 3). For a moment, the owner of the "Bar Mani Al Cielo" was also capable of doing it as he found two suppliers willing to accept Bitcoin as well as the employees working in the café (Interview 7 – see Appendix 3). For the latter option, he mentioned a solution offered by a company called Bitwage, a company based in San Francisco providing companies payroll solutions related to Bitcoin and other cryptocurrencies (Bitwage, 2022). As described by their website, they offer solution for individuals, managing part of their wage, or for companies wanting to offer innovative HR solutions (Bitwage, 2022). Gianpaolo mentioned their solution to be not particularly challenging as he used to transfer them the EUR and they sent the respective value in BTC to the address of the employees, which was previously communicated to the company (Interview 7 – see Appendix 3). However, this worked for some time before some issues with the volatility were experienced and some of the employees complained about the price going down (Interview 7 – see Appendix 3). Indeed, apart from Gianpaolo, nobody mentioned this solution, with my respondents being allocated in Italy, Switzerland, or the UK. This can be linked to the previous paragraph speaking about the geography of Bitcoin users, with political instability and inflation being positively linked to Bitcoin's convenience (deel, 2021). In fact, a recent report on the state of global hiring found that, between July and December 2021, people in Latin America and Africa are increasingly receiving part of their salaries in crypto (deel, 2021). Specifically, the top countries where people receive part of their paycheck in cryptocurrencies were found to be Argentina, Brazil, and Nigeria (deel, 2021). On the other hand, if a company is based in a more stable economic environment and having

business with these countries, it can be useful to retain part of the treasury in crypto to facilitate international transactions and also due to higher demand in these countries (Interview 4 – see Appendix 3), where the previously mentioned report on the global state of hiring in 2021 observed a 10% growth month over month of people wanting to be paid in cryptocurrency (deel, 2021).

One last interesting case of cryptocurrencies being re-used for payments is the Lugano's experiment with the Luga Coin. As was mentioned during the interview, an ecosystem promoting the investment and spending of cryptocurrencies can lead to a wider adotpance and a value which then circulate within the economy (Interview 13 – see Appendix 3). The numbers claimed seem to confirm this theory, with more than 6 million CHF circulating in the citizens' wallets and 150 merchants where the inhabitants of Lugano could spend their stable coins by also receiving a 10% cash back (Interview 13 – see Appendix 3).

Hedge

Hedging is a risk management strategy referring to taking a position which is opposite to the current one concerning a particular asset (phemex, 2021). This strategy is still pre-mature for most of the respondents as the companies are small and the revenues obtained in Bitcoin are not relevant yet. Yves, working in a bank managing large investments in cryptocurrencies (Seba Bank AG), mentions the fact that many family companies in the Zug area who wants to invest large amount of money in Bitcoin or other cryptocurrencies will write options to enhance the portfolio and get some yields (Interview 3 – see Appendix 3). Options may constitute a good investment for those companies and investors who want to be protected against Bitcoin's volatility. Indeed, options' prices can be considered to a predictor of an asset's volatility and, therefore, a call option fixing an acquisition price for Bitcoin can be a valuable asset to be eventually re-sold in the market (Interview 15 – see Appendix 3).

Moreover, Alessio, working on the financial side of a software company operating in the crypto area and having clients in Italy, UK, UAE and Switzerland, claims that the companies earning a percentage higher than 5% of the total sales in Bitcoin will have a CFO probably, which will use future contracts to sell these assets at fixed prices (Interview 10 – see Appendix 3).

In general, the fact that Bitcoin was created with the decentralization in mind means that no regulation from financial institution can be applied, increasing the volatility of the asset (phemex, 2021). For this, derivatives provide a way for companies to reduce the volatility of their holdings, making Bitcoin more widely accepted at a commercial level (Interdax, 2019).

Of course, also the correlation with conventional assets discussed above can be leveraged to be protected against potential sudden value decrease of Bitcoin, as also demonstrated by a study published in 2021 (Nekhili, 2021). Having already described portfolio diversification as a potential way to decrease the risk of holding Bitcoin, this paragraph will focus on financial derivatives, which are *"contracts, such as futures, options, or perpetual swaps, that enable investors to place bets on a falling or rising price of bitcoin (BTC)"* (Interdax, 2019). Derivatives are traded on crypto exchanges with Binance and FTX being the largest platforms by open interest (Shah, 2021). It is important to highlight that the derivatives market for Bitcoin and cryptocurrencies is still young, with the first Bitcoin future being launched in 2017 by the Chicago Mercantile Exchange (CME) (Nekhili, 2021). Due to the recency of these instruments, empirical studies are scarce. However, Bitcoin futures were shown to be negatively correlated to Bitcoin's prices, performing well in reducing the risk of holding Bitcoin and other related cryptocurrencies (Corbet, 2020). At the end of 2021, Bitcoin futures had around $23 bn of open interest across all exchanges, as can be observed from Figure 17 (Shah, 2021). According to CoinDesk, still comparing the aggregate open interests, the options market for Bitcoin has showed a higher growth rate compared to futures and swap markets in 2021 (CoinDesk, 2021). This is shown by the increasing offerings of these products by traditional banks, with Goldman Sachs executing its first over-the-counter crypto options trade on March 2022, representing the first OTC transactions related to digital assets by a major US bank (Yang, 2022). In the end, since many investors still see Bitcoin and cryptocurrencies for trading and speculation, it is fundamental for companies accepting Bitcoin and receiving large payments to consider hedging strategies, such as portfolio diversification and financial derivatives to mitigate the risk of holding this asset into a company's treasury while still embracing the change and integrating this form of revenue.

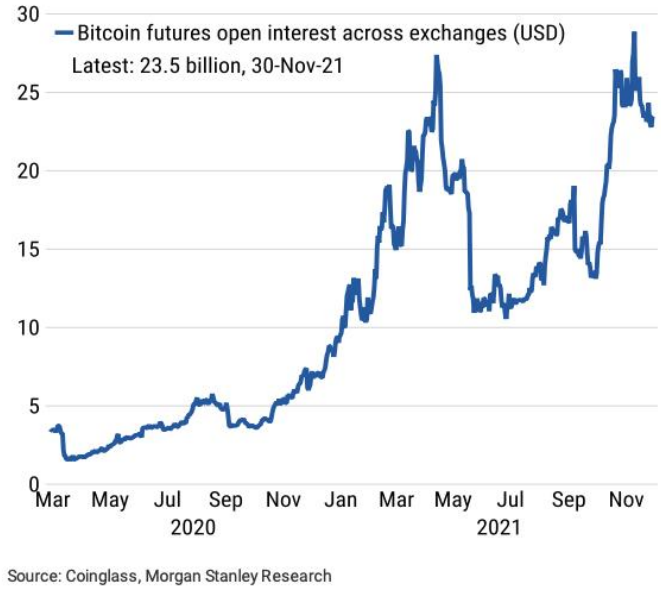

Figure 13: Open interest of Bitcoin futures across exchanges (Shah, 2021)

Chapter Four: Accounting standards for cryptocurrency's holdings

Another challenge to consider when accepting Bitcoin as a form of payment is accounting for them. Bitcoin and cryptocurrencies as an exchange mean can still be considered on an early adoption phase. Therefore, accounting standards and principle are mostly non-existent and surely not aligned internationally. It was also mentioned during the interviews that this should not be a primary issue considering the stage of adoption (Interview 13 – see Appendix 3). The results of the qualitative research show that 47% of the respondents did not have a clear opinion on the accounting they used for Bitcoin, either because they were not expert on this specific topic or because it was managed externally by their own accountant. Those who could answer the question on this topic consider the general accounting standards to be unclear, allowing personal interpretation, and that policy makers should focus on providing a general definition of crypto currencies before. It was pointed out that the Income Statement is generally not affected as the revenue in Bitcoin is registered in the correspondent value in fiat currency at the time of the transaction, as if it was a foreign currency (Interview 1 – see Appendix 3). On the other hand, the Balance Sheet is at the center of the debate due to different interpretations on how to register the Bitcoin held in treasury (Interview 4 – see Appendix 3). Throughout this chapter, a comparison between different accounting standards based on definition, financial reporting rules and taxation policy will be developed. The jurisdictions selected correspond to the most relevant ones concerning Bitcoin employment worldwide. Thus, international (IFRS), US GAAP, and EU, diving deeper on Italy and Switzerland, which are the focus countries for this research. In those two countries, a focus will be given on practices generally employed by SMEs and micro firms starting to accept Bitcoin, representing about 99% of the businesses operating within both territories (PMI, 2021) (Ufficio Federale Statistica , 2020). Later, a focus on what should be done in the future to boost adoption, in terms of accounting rules is provided, with a deeper focus on fiscality, which seems to be the main factor potentially driving wider acceptance by companies.

International Financial Reporting Standards (IFRS)

To start, the IFRS standards should be analyzed to understand the international trends surrounding the topic of accounting for cryptocurrencies. In fact, the standards imposed by the International Accounting Standards Board (IASB) are required in more than 140 jurisdictions

in the world, including the European Union (IFRS, 2022). Given the fact that EU is adopting these standards, member countries, such as Italy, require public companies to adopt these standards (IFRS, 2022). However, in Switzerland, these standards result permitted for both public and private companies, with the Swiss GAAPS taking precedence (IFRS, 2022).

Legal Definition

The IFRS International Committee (IFRS IC) met in June 2019, after solicitation from the IASB, to discuss the matter of transactions completed with different assets, including digital currencies (EY, 2019). To define cryptocurrencies, the Committee looked broadly at the cryptographic assets, discussing digital currencies as a subset of this new asset class. It is important to highlight that, nowadays, no legal definition exists for cryptographic assets, although some jurisdictions are looking at them as securities (Ramassa, 2021). A recent report, published in December 2019 by PwC, tried to interpret the guidelines of the IFRS IC, by looking at the different cryptographic assets and defining them according to their primary purpose and inherent value (PwC, 2019). Here, cryptocurrencies are regarded as: "digital tokens or coins based on blockchain technology, such as Bitcoin. They currently operate independently of a central bank and are intended to function as a medium of exchange", with no inherent value attached (PwC, 2019). However, the IFRS IC, after publishing a tentative agenda named as "Holdings of Cryptocurrencies", listed three main features related to them (EY, 2019):

- *A digital or virtual currency recorded on a distributed ledger that uses cryptography for security*
- *Not issued by a jurisdictional authority or other party; and*
- *Does not give rise to a contract between the holder and another party*

Financial Reporting

Still looking at the agenda published in 2019 by the IFRS IC, cryptocurrencies were found to meet the definition of intangible assets, defined under IAS 38, or inventory, treated by IAS 2, in case they are held for sales as part of the company's daily operations, meaning that they

cannot be considered as financial assets (EY, 2019). An exploration of these two accounts' definition should be explored to understand the line of reasoning employed by the Commission. In general, a cryptocurrency like Bitcoin should be defined as an *intangible asset* because (i) it is a resource controlled by an entity who has the power to obtain future economic benefit from it (IFRS, 2022) (ii) it is identifiable and it can be sold or exchanged (iii) it is not cash or monetary asset as most of them are not legal tender or backed by governments (IFRS, 2022) (iv) it has no physical form (PwC, 2019). An interesting point developed by the Committee is indeed the third point, about cryptocurrencies not taking monetary form. The recent case of Lugano, both adopting Bitcoin and Tether as legal tender as well as backing a digital currency (Interview 13 – see Appendix 3) proves that there are developments on this point. Moreover, the project of developing the CDBC (Central Bank Digital Currency), which will be examined in the next chapter, can also challenge this interpretation given by the IFRS in 2019 (Shah, 2021).

On the IAS 38's description, the IFRS specifies that "this this Standard does not apply to: intangible assets held by an entity for sale in the ordinary course of business*"* (IFRS, 2022). In that case IAS 2 standard should be employed, treating cryptocurrencies as "Inventory" (EY, 2019).

US GAAP

While being widely adopted with the main purpose of creating a common global language for accounting, the IFRS adoption has been slower in the US. In fact, domestic public companies in the US must use the national GAAP (IFRS, 2022). Therefore, an analysis on the accounting of cryptocurrencies in the US shall be developed, also considering the pivotal role of the country in the adoption of digital currencies demonstrated by the growth of important industry leaders such as Coinbase and Kraken.

Legal Definition

There is still no common legal definition of cryptocurrencies provided by the US legislation whereas the countries generally recognized the importance of the Blockchain technology, highlighting the intention for the federation to have a dominant role in the development of the technology for various purposes (Dewey, 2022). Within the legal context, the attention mostly goes again to defining the asset class (crypto assets), referring to cryptocurrencies as "virtual

currency" or "digital tokens" (Dewey, 2022). Some legislations within the US are competing to become the most crypto-friendly in order to attract foreign investment from companies operating in this industry as well as private investors, employing the same strategy as Switzerland (Schwanzar, 2018). Some examples are given by Wyoming, Colorado and Oklahoma starting to accept taxes in cryptocurrency (Dewey, 2022). Overall, no GAAP exact definition or guidance is provided (Wang, 2021).

Financial Reporting

The treatment provided by US GAAP is similar to the interpretation extrapolated from the international accounting standards. As a matter of fact, holdings of cryptocurrencies by a listed company shall be recorded as intangible assets based on the guidance within *FASB ASC 350 Intangibles – Goodwill and Other* while eventual gains obtained from the sale of these assets can be recorded in *FASB ASC 610 Other Income*, as the practices employed by the main public corporations holding Bitcoin in their Balance Sheet suggest (MicroStrategy, 2021). Compared to the International Accounting Standards, these accounting principles can be considered as being less crypto-friendly as the eventual impairment loss, due to the a price decrease, cannot be reversed to account for the asset at the book value (Chandrasekera, 2020). Table 3 provides a summary of the main differences between IFRS and US GAAP, highlighting a lower flexibility of the North American standards (The Footnotes Analyst, 2021). This can indeed represent a challenge for some companies, as no upward revaluation is allowed under US GAAP, therefore rendering the communication of financial results to investors more unpredictable, especially when the company has heavily invested or accepted Bitcoin or other cryptocurrencies (Wang, 2021). Two case studies are represented by MicroStrategy and Tesla, both announcing strong investments on cryptocurrencies on their annual report, anticipating the investors their accounting treatment and the potential consequences on the firms' financial results for non-business-related reasons. Tesla, founded in 2003 with the mission to accelerate world's transition to electric vehicles (Tesla , 2022), within their annual report released at the beginning of 2021 claiming the approval by their Board of Directors for an investment amounting to $1.50 billion in Bitcoin and "may acquire and hold digital assets from time to time or long-term*"* (SEC, 2020). Within the same document, the organization also points out the eventuality of accepting Bitcoin as a form of payment, which then happened during the first months of 2021 (Hussain, 2021). Within their annual report, Tesla also discusses the financial

reporting issues concerning Bitcoin, which is considered indeed as an *"indefinite-lived intangible asset"*, therefore requiring the company to register impairment losses whereas not making any upward revision (SEC, 2020). In this way, the organization anticipated to the investors the potential negative impact of impairment losses on future operating results, which indeed reviled an accounting loss of $101 million at the end of 2021 which was offset by a reported $272 million profits from the sale of Bitcoin (Ponciano, 2022).

	IFRS	US GAAP
Measurement	Historical cost (unless revalued)	Historical cost
Amortisation	No – an indefinite life asset	No – an indefinite life asset
Impairment	Write down if price below cost – expense reported	Write down if price below cost – expense reported
Profit on sale	Sale proceeds less balance sheet amount	Sale proceeds less balance sheet amount
Reversal of impairment	Yes - if price recovers. Gain reported in profit and loss	No – impairments are not reversed
Upward revaluation	Permitted - revaluation gain reported in OCI	Not permitted
Revaluation surplus on sale	Remains in OCI – no recycling to profit and loss	Not applicable

Table 3: Intangible asset accounting comparison between IFRS and US GAAP (The Footnotes Analyst, 2021)

With more than 43k Bitcoin, Tesla is the second corporation in the world for Bitcoin holdings, with the first company being MicroStrategy, holding about 125k coins worth more than $5 billion (Ponciano, 2022). MicroStrategy was founded in 1989 by Michael Saylor and it is now the leading provider of enterprise analytics software and solutions (MicroStrategy, 2022). In their annual report, published at the end of 2020, the organization claims to develop two strategies, one being to grow the firm's core business and the second to "acquire and hold bitcoin", therefore looking them as a long-term investment as opposed to speculation strategies (MicroStrategy, 2020). MicroStrategy registered on December 31, 2020 a value of $1.05 billion on Bitcoin, even accumulating them at the beginning of 2021 (MicroStrategy, 2020),

representing 72% of their total assets and up from zero in 2019 (Reiners, 2021). Like Tesla, MicroStrategy points out the accounting risk related to heavy Bitcoin holdings due to potential impairment changes as well as the option to occasionally sell Bitcoin "to generate Cash Asset for treasury management purposes" (MicroStrategy, 2020).

European Union

Europe was also shown to be among the main territories concerning Bitcoin trading in Figure 9. As briefly mentioned in the first paragraph, the EU required the adoption of IFRS standards for "all companies whose securities trade in regulated market" (IFRS, 2022). Therefore, an equal interpretation of crypto assets and crypto currencies is to be expected for all publicly traded companies in those countries under the EU legislation. In July 2020, the European Financial Reporting Advisory Group (EFRAG) published a discussion paper titled as "Accounting for Crypto-Assets (Liabilities): Holder and Issuer Perspective" (Deloitte, 2021) followed by a webinar and part of a project initiated in 2019 by the same agency with the purpose of providing a better and official overview on crypto assets (Ramassa, 2021). This project shows that the interest towards crypto assets is growing fast while considering also that practitioners and experts will play a pivotal role in advising companies and private investors on the opportunities related to this asset class (Marrone, 2019). However, at the time of writing, the research can still be considered on a discussion phase (Schmitz, 2019).

Sample interview analysis on current accounting practices

Confirming that Bitcoin's accounting is still an emerging topic, the results of my interview point that only 65% of 20 responses could be provided. The non-availability to contribute to the research on this aspect was due to two main reasons. The first one is that the organization's accounting was not managed directly by the owners, with 56% of the companies interviewed letting external business consultants handle the financial statements preparation. For the rest, some experts on other areas concerning payments in Bitcoin were called in comprising a financial trader (Jason Freeman), a municipality consultant (Robert Bregy) and a general manager (Denis Scheller), who declared themselves not to be expert in accounting and, therefore, impaired to help. For the rest, companies directly converting Bitcoin when the transaction takes place are not affected by financial registration dilemmas. Furthermore, to clarify Bitcoin's accounting in the contexts analyzed during this research, two accounting

experts were included to the research with the purpose of discussing solely the accounting aspect of Bitcoin's payments. The first was Giammarco Brega, business consultant in Milan, Italy, taking care of the preparation of financial statements for many Italian SMEs and author of an interesting article on the potential interpretation for Bitcoin's treasury holding in the Balance Sheet (Brega, 2022). The other is Michael Merz, head of accounting at Bitcoin Suisse and ex-auditor at PwC, who could provide me with an overview on accounting practices in Switzerland. Within this topic (T4), the first question aimed at analyzing how these companies that could answer registered their accounting in Bitcoin. The graph below (Figure 14) shows the answers provided. It can be noticed that the emphasis is put on the Income Statement effect of accepting BTC as a form of payment. Indeed, with more than half of the companies interviewed being micro enterprises, the accounting is simplified by law, being treated more thoroughly within the paragraphs describing the regulatory framework in Italy and Switzerland. Thus, 41% of the respondents answered that this decision does not affect the registered revenues as the transactions are accounted with the denomination in fiat currency at the time in which the purchase is completed (Interview 1 – see Appendix 3). In this context, as for most of these companies the accounting is managed externally, a software company such as Bitcoin People provides a solution to send the accountants a detailed file with the transactions date and amount in BTC and BTC/fiat correspondent the transactions' moment (Interview 4 – see Appendix 3). As confirmed by El Hadji, the main problem for accountants preparing these specific financial statements is to retrieve the transaction and the value now, which the solution provided by the company would solve (Interview 4 – see Appendix 3).

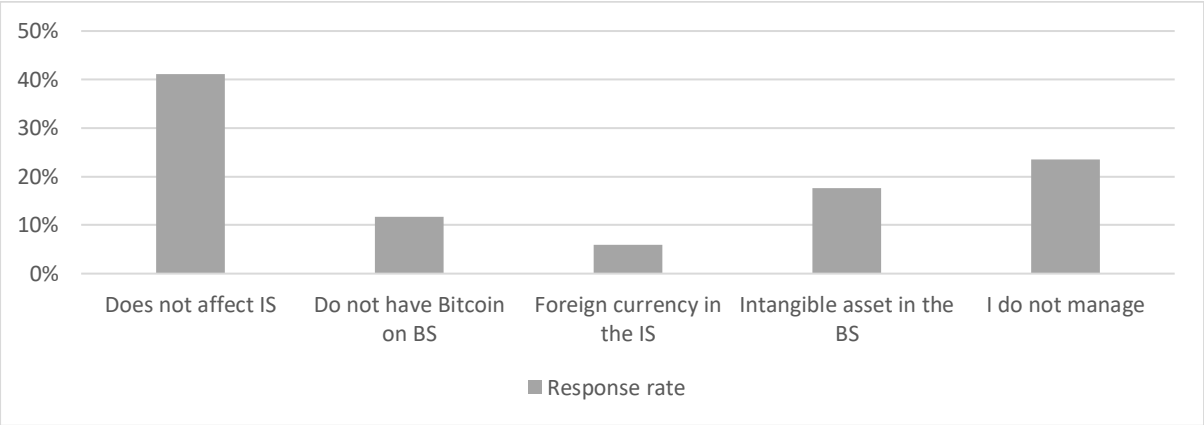

Figure 14: Answers to *Question 4: "How do you manage accounting of revenues in Bitcoin?"* (17 answers, from 05/03/2022 to 02/05/2022)

Although having an opinion on what should be done and what are the main accounting practices, the second most mentioned answer among the interviewees was "*I do not manage".* This is still related to the fact that, mostly for small and micro enterprises, the accounting and fiscal matters are managed by external business consultants. In Italy, they are called Commercialisti, and they amounted to more than 70,000 in 2020 according to the category's bar official report (Fondazione Nazionale Commercialisti, 2020). The third category, classified as *"Do not have Bitcoin on Balance Sheet"*, regards those respondents who directly convert the BTC received in the fiat currency via non-custodial solutions offered by payment gateways. This option was already mentioned in chapter two, when discussing the payment gateways solutions, and in chapter three, as the second re-deployment path for the form of revenue received in cryptocurrency. Another option is to treat them as a *"Foreign Currency in the Income Statement"* (7%), which is an interpretation that can be given as in many countries it is starting to be turned to legal tender (Interview 10 – see Appendix 3). Although from international standards, as mentioned above, crypto currencies cannot be considered as *Cash and Cash Equivalents,* the regulatory flexibility provided by the fact of not being a listed company allow the business consultants preparing the financial statements this freedom of interpretation. Overall, one can conclude that, at the current legislative state, accepting cryptocurrencies does not affect the Income Statement of private companies as the revenues are still registered in the denominated value in fiat currency.

About the Balance Sheet, from the admission of experts working closely to this field, there is still a regulatory gap as it is not clear on how to account for these assets. Freedom of interpretation is generally given to fiduciaries managing financial declarations for SMEs in Italian and Swiss context. This was confirmed respectively by Giammarco Brega, claiming that him and his colleagues generally "look at the 3-4 statements that were published in order to form interpretations which are in line with the fair representation principle of accounting" (Interview 16 – see Appendix 3), and by Michael Merz, claiming that fiduciaries in Switzerland can adapt their interpretation to the company's context as we are in a period of regulatory gap and SMEs are not audited (Interview 17 – see Appendix 3). This is in line with IAS 8: "In the absence of an IFRS Standard that specifically applies to a transaction, other event or condition, management uses its judgement in developing and applying an accounting policy that results in information that is relevant and reliable." (IFRS, 2022).

Italy

As 54% of the companies interviewed operate in Italy, which is also one of the main countries for Bitcoin acceptance among merchants in Europe (Statista, 2021), it becomes relevant to briefly digress on the accounting requirements for SMEs and the implication for the accounting of the revenue in Bitcoin for these companies. This is also important as my sample is composed by mostly micro enterprises (57%). First, within the Italian legislation, a micro enterprise should not count more than EUR 175.000 on the asset side of the Balance Sheet and/or more than EUR 350.000 of revenue for the first two consecutive years of activity, while the average number of employees during the year should not be higher than 5 (Nicola, 2018). According to Italian National Statistics Center (ISTAT), micro enterprises specifically represent about 79% of the total enterprises operating within the territory at the beginning of 2020, with an annual growth of 5.6% (ISTAT, 2020). These data add relevance to the analysis of the easiness in accounting for Bitcoin as analyzing the current practices and potential room for improvements can spread wider adoption within the country.

While companies trading their shares in a regulated market are required to adopt the international standards for accounting (IFRS, 2022), micro enterprises enjoying a simplified accounting process compared to public companies (Interview 7 – see Appendix 3). Indeed, the article 2435 bis of the Civil Code, treating the simplified financial statements, requires companies counting less than EUR 4 million in assets and less than EUR 8 million in sales to employ a simplified financial registration process (Civil Code, 2015). According to that, these companies have an obligation to register a simplified Income Statement and a simplified Balance Sheet (Nicola, 2018). The Income Statement, as already described above is not affected under the current legislation as the revenues are still registered in EUR. The Balance Sheet is at the center of the debate in Italy as well. Indeed, the simplified accounting required for micro firms contains an abbreviated structure of this statement, although still including the main voices such as cash, inventory, financial activities *("Attività finanziarie"*), and intangible assets, named as *"Immobilizzazioni immateriali"* (Nicola, 2018). From the Italian accounting principles definition, it becomes clear that Bitcoin holdings cannot be considered as cash & equivalents (treated by OIC 14), credits (treated by OIC 15) or financial instruments (treated by OIC 32) (Interview 16 – see Appendix 3). As for the interview with Giammarco Brega, business consultant based in Milan, Italy and specifically treating the topic of crypto currencies accounting for SMEs, it can be confirmed that also in Italy the viable options seem to be either intangible assets (OIC 24), where there is the opportunity to generate economic profit from a

potential future sale, or inventory (called *"Rimanenze"* and treated by OIC 24), when they enter into goods or services to be sold in the regular core business of the company (Interview 16 – see Appendix 3). However, the latter is more the case of companies specializing on the trading of cryptocurrencies, being the so-called exchanges (Interview 16 – see Appendix 3). However, this interpretation seems to go in contrast with the official position of the Italian fiscal agency *(Agenzia delle Entrate)* which, within a statement published in 2016, claimed that digital currencies, officially named as *"bitcoin"* in the document, shall be treated similarly to real currencies even during the accounting registration (Agenzia Entrate, 2016). This option, which was also mentioned during the interviews performed, would imply different tax treatments, such as the taxation on the surplus (increase in value) or the deductibility in case of price decrease, both indicated in the Balance Sheet over the registration period (Interview 16 – see Appendix 3). However, tax considerations are going to be treated in the last paragraph of this chapter.

Switzerland

Even in Switzerland, accounting for crypto currency can still be considered as an early stage with no legal definition provided for crypto assets (Baur D. , 2022). The accounting practices employed for companies holding Bitcoin, either in exchange for their goods or services or as an investment, seem to go in the same direction as the overall interpretation given by accountants in Italy. The cryptovalley's community, located in Zug, tries to look at the main law provisions and give an interpretation as it is generally done in the above-mentioned confining country. There is a general agreement that they should be entered within the Balance Sheet as assets (Schwanzar, 2018). Looking at Swiss legal definitions, assets are defined by the article 959(2), concerning the capitalization criteria for assets, and defining them as items that can be obtained *"as a result of past events, if cash inflow is probable and if their value can be measured reliably"* (Droit suisse, 2022). As of this description, Bitcoin and other cryptocurrencies meet all these criteria and, therefore, fits the category of assets. Specifically, Bitcoin could be accounted in *current assets, non-current financial assets, inventories, and intangible assets* (Schwanzar, 2018).

In the first case, cash & equivalents might correspond to a fair representation of the business activity if Bitcoin can be used, under the rule of law and, therefore, in court, to extinguish an existing debt (Interview 16 – see Appendix 3). Therefore, within the Swiss context including the conversion of Bitcoin to legal tender in cities such as Zug, Chiasso and Lugano (Interview

13 – see Appendix 3), Bitcoin and other digital currencies are likely to become widely adopted and accepted, not only by the municipality, but also by other institutions and organizations throughout the whole country. However, Michael Merz denies all the potential connection between Bitcoin and the voice "Cash & Equivalents" by stating that: "*to be considered as cash, an asset should be issued by a central bank and be backed by a regular institution"* (Interview 17 – see Appendix 3). Therefore, even the legal status provided by the municipalities among the country does not entitle Bitcoin to be considered as cash as it is not backed by any jurisdiction, which is a case that can be applied even to the national legalization given by El Salvador to Bitcoin, according to Michael Merz (Interview 17 – see Appendix 3).

Speaking of financial assets, one can also observe a peculiarity within Swiss jurisdiction. Indeed, the term "security" (in German *"Wertschriften"*) does not necessarily require a counterpart (Droit suisse, 2022) and thus Bitcoin, for which an active market exists, can fit this definition as well. Accounting for Bitcoin as inventories still entails the trade of these assets within the ordinary business course. Hence, Bitcoin exchanges can be entitled to register the digital currency as a tradable. Lastly, Bitcoin surely fulfills the description of an intangible asset as units are identifiable and without physical substance. Moreover, they are discernable to the CHF where they are missing legal status (Schwanzar, 2018). However, it is believed by the Crypto Valley's association in Zug, being government-supported and helping enterprises to build a shared vision (Crypto Valley, 2022), that according to the current legal definitions the best accounting voice for Bitcoin is considering it as a financial security (Schwanzar, 2018). However, what is it done in practice and how's the accounting for cryptocurrencies generally managed in Switzerland? Michael Merz, Head of Accounting at Bitcoin Suisse, claims that Switzerland is in line with the general international practices, considering Bitcoin as "immaterial asset" when the holdings are part of the company's treasury without being related to the company's core business activity (Interview 17 – see Appendix 3). The case of Bitcoin Suisse, consisting primarily of an exchange and accounting for more than 200 digital currencies, allow them to register cryptocurrencies as inventory (Interview 17 – see Appendix 3). However, during this interview, it was also claimed that the current state presents many regulatory gaps allowing business consultants for SMEs, not being audited, to interpret and register cryptocurrencies even as "securities" or "cash & equivalents" in some cases (Interview 17 – see Appendix 3).

Potential future trends for cryptocurrency accounting

After asking the respondents how they currently manage the accounting side for the revenues in Bitcoin, there was another part of the interview asking their opinion on what should be improved to optimize the financial registration of these assets to further enhance business adoption. In fact, openness of accounting standards to this new asset class is widely considered fundamental to boost adoption (Rey, 2021). In the graph below (Figure 15), the responses to the question *"What do you think should be adjusted in the future?"* are categorized and provided.

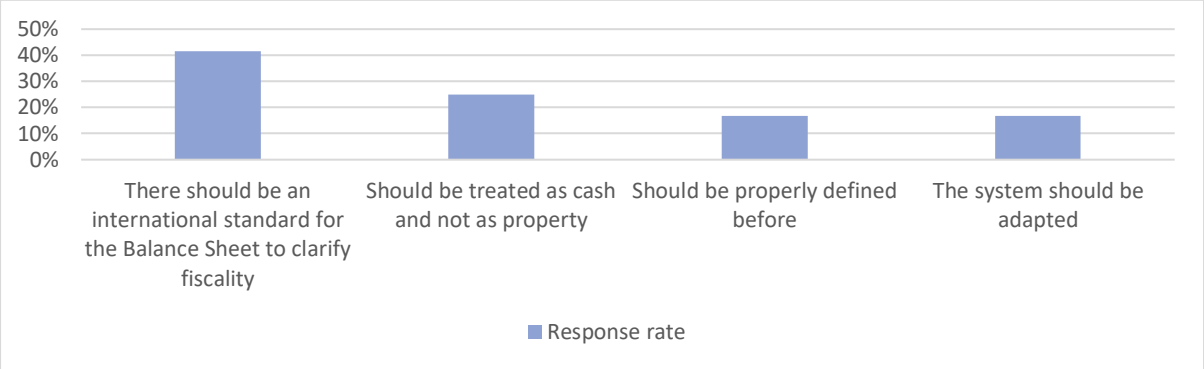

Figure 15: Answers to *Question 6: "What should be done to boost adoption?"* (17 answers, from 05/03/2022 to 02/05/2022)

From these results, it is evident the need to clarify an international standard for Balance Sheet registration and, therefore, the effects on taxes paid on unrealized or capital gains (mentioned 41% of the time). Secondly, 25% of the respondents believe cryptocurrencies, contrarily to the current interpretation should be considered specifically as cash, and not as property. Alessio comments indeed the Italian Fiscal Agency's statement about considering them as "foreign currency" (Agenzia Entrate, 2016) by claiming that, considering the recent developments, this might be the correct definition for Bitcoin and cryptocurrencies (Interview 10 – see Appendix 3). Next, 17% of the respondents look at the accounting system, with the main software and rules not being flexible enough to integrate this new asset class. For instance, Michael points out that the main accounting software such as SAP or Abacus consider just 200 currencies in the world while Bitcoin Suisse manages more than 200 digital currencies (Interview 17 – see Appendix 3). Yves Longchamp claims that entering a currency into the system requires them to have an acronym of exactly three letters (for instance, EUR, USD, GBP). However, some of these digital currencies are abbreviated with more, for example the stable coins USDT and

USDC, rendering accounting for them harder (Interview 3 – see Appendix 3). Lastly, the same percentage as before (17%) claim that a proper definition should be given before, with Giammarco Brega expecting an accounting standard only tackling the new crypto assets' class (Interview 16 – see Appendix 3) and Dario stating that, not knowing what it is yet, the Italian legislation is missing many opportunities to proper regulate the crypto commerce (Interview 6 – see Appendix 3).

Tax considerations

As can be observed from Figure x, above, the fiscal treatment of digital currencies is one of the most salient topics for further adoption within a national legislation. The tax treatment was described by the respondents as inconsistent internationally and subject to the interpretation of either the firm's finance department or the business consultants managing the financial registration of the company. To prove the confusion on this topic, only 70% of those who initially had an opinion on the registration of Bitcoin could answer on fiscal considerations for the holdings of digital currencies. Of this portion, 58% of the respondents mentioned the tax on capital gains registered when Bitcoin is sold. To provide an overview on what different legislations state about crypto currencies taxation, PwC prepared a comprehensive report in 2020, comparing the state of advancement on taxation of crypto assets. In Figure x, one can notice the publication date of the first indications on the matter by different legislations (PwC, 2020). It is important to highlight that the first publications were released 5 years after the first Bitcoin's transaction.

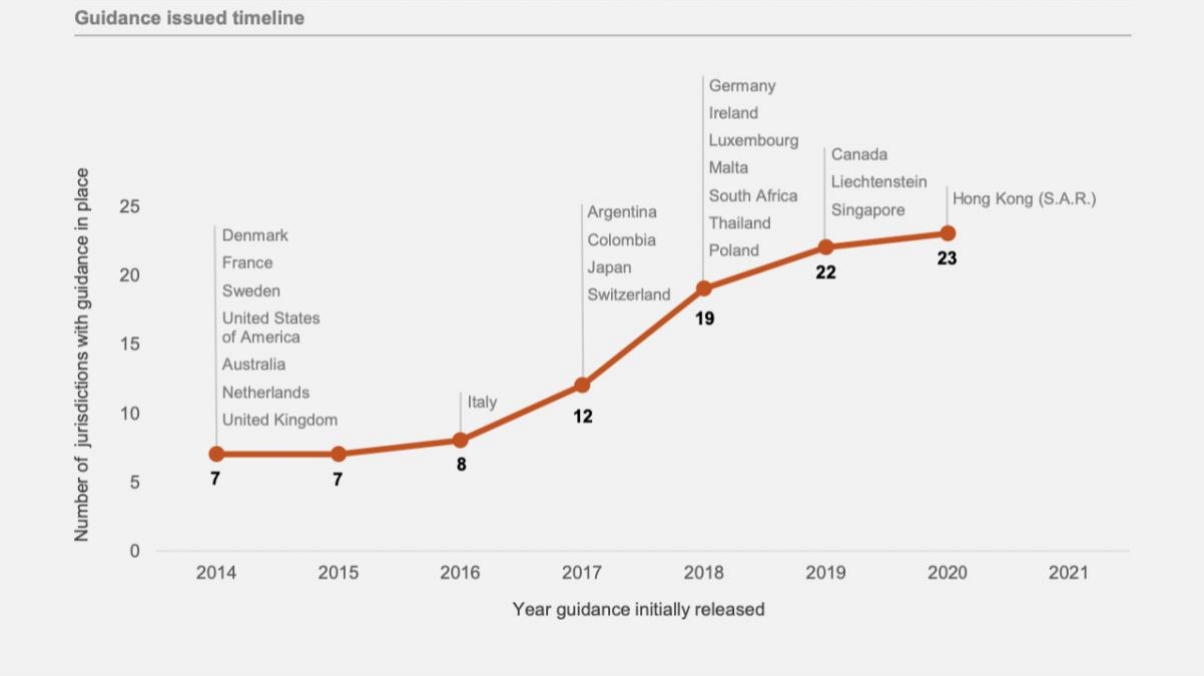

Figure 16: Publication of tax guidance on digital assets (PwC, 2020)

To confirm the result of my research, it was shown by PwC that about 60% of these legislations define the calculation of the capital gain when the crypto assets are sold, with the main purpose of defining taxation for both individuals and companies holding them (PwC, 2020). Other well-examined topics seem to be the direct taxation on mining income and the VAT on the trading of payment tokens, while other recent matters such as the crypto borrowing, linked to the concept of DeFi, and NFTs are not treated at all by national policy makers (PwC, 2020).

Taxes on capital gains can therefore be considered as the main competitive element for a jurisdiction to be considered as crypto-friendly and attract foreign investments of businesses as well as individuals living there for tax benefits. In Italy, during the interviews, it was confirmed that the tax on capital gains is 26%, which correspondents to the "flat tax" on financial gains decided in 2014 (Eleonora, 2014). However, different countries apply different rates and methods, such as Germany, not charging any imposition on capital gains when Bitcoin is sold at least one year after the acquisition, to avoid financial speculation (Interview 4 – see Appendix 3). Other crypto-friendly legislations that were mentioned are Malta and the UAE (Interview 6 – see Appendix 3), with Dubai being considered by many industry players as a heaven for Bitcoin holders, not imposing any taxation on capital gain and incorporating a high number of merchants accepting payments in Bitcoin (Gogo, 2021). PwC also provides an index measuring the legislations' development concerning guidance on crypto assets taxation. Figure x provides a summary of the ranking (PwC, 2020).

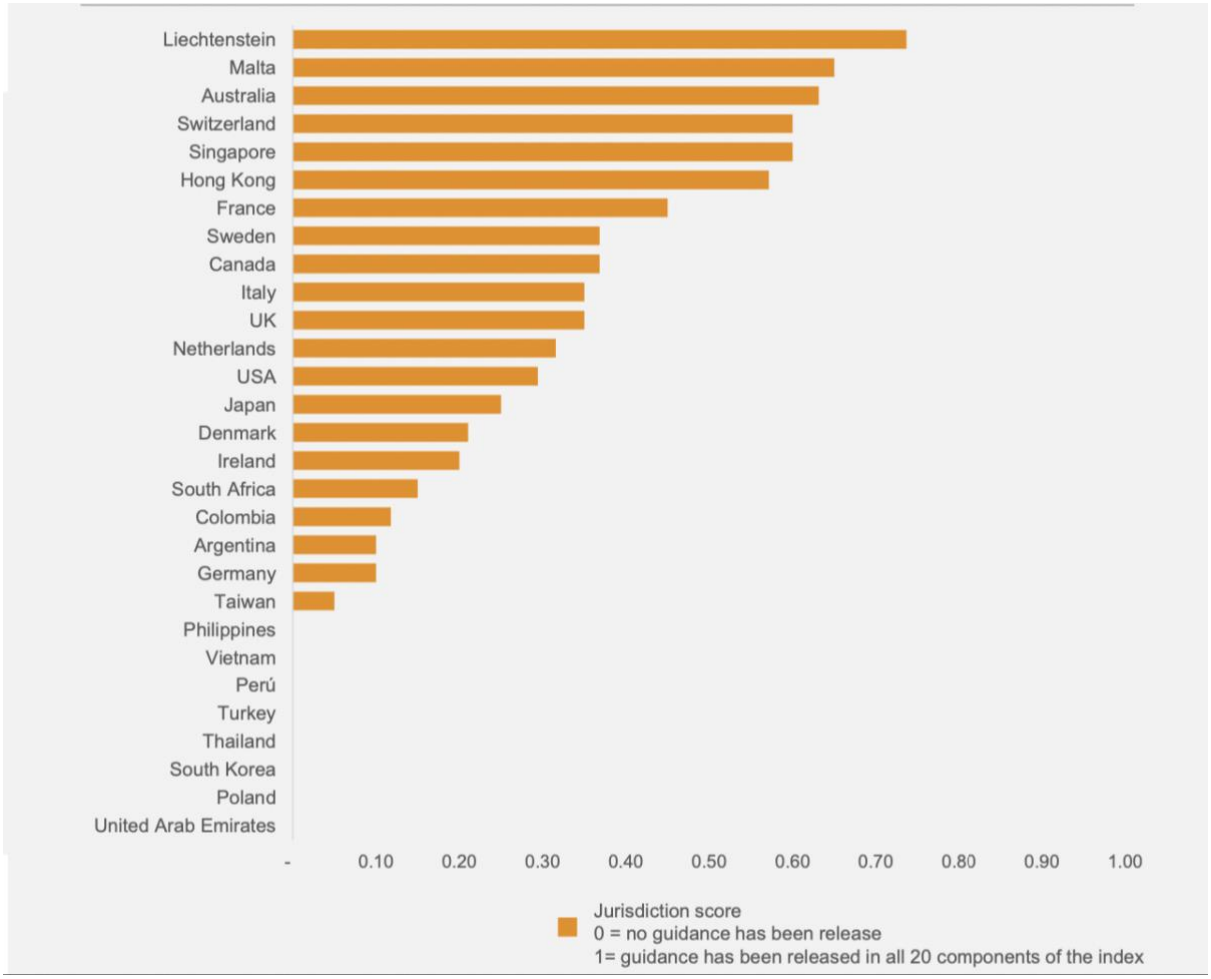

Figure 17: PwC Crypto Tax Index (PwC, 2020)

This figure shows Dubai as a paradise, though not regulating and "not asking questions" as industry experts article seems to confirm (Gogo, 2021), while Malta is indeed represented as one of the most developed legislations on this issue (PwC, 2020). Switzerland also ranks high according to this index. It was indeed mentioned during the research that Switzerland does not incorporate any taxes on the capital gain arising from the sale of digital currencies (Interview 4 – see Appendix 3), where in fact private investors are exempted to pay taxes on an eventual surplus obtained from their investment while professionals or businesses generally do not bear imposition of they hold Bitcoin for at least 6 months and the capital gain is lower than 50% of the total income within the financial year (Koinly, 2022). Michael Merz confirms the status quo of Switzerland as one of the main crypto heavens in the world adding that the government is supporting initiatives related to cryptocurrencies and, more broadly, Blockchain technology (Interview 17 – see Appendix 3). To that, Michael adds an example from 2018, when some companies reported a high value of Bitcoin on the 31st of December of 2017, but later, at the

beginning of the following, year the price dropped by about 50% passing from about $14,000 to less $7,000 in one month (Yahoo Finance, 2022). Theoretically, the companies reporting the increase in value on their Balance Sheet should have paid taxes on the unrealized gain, but the government allowed them to avoid this imposition by understanding the volatility of the asset (Interview 17 – see Appendix 3). The USA's case, as an early entrant and regulator in the industry (one can observe in Figure x that the first legislation was introduced in 2014), shall be examined as well. The rule in the North American country is similar to the one developed in Germany, with the main difference that no tax applies if, first, Bitcoin is held for more than 12 months, and the capital gain is not higher than $40,400 (Roth, 2022).

Capital Gain Calculation

How is the fair value and subsequent capital gain calculated though? As of the fair value, the calculation is made on a "cost basis" for US GAAP purposes, including all the transaction costs, which are usually paid in Bitcoin, that may arise, counting them within the capital expense, as Microstrategy suggests within their crypto tax consideration report published at the beginning of 2021 (MicroStrategy, 2021). In fact, as an active market exists, fair value can be determined by looking at the acquisition cost denominated in the fiat currency applying to the legislation (Interview 16 – see Appendix 3). The legal observability of the book value is also valid according to the Swiss legislation, confirmed by Michael Merz (Interview 17 – see Appendix 3). For that, IFRS 13, treating *Fair Value Measurement,* should be analyzed (GrantThornton, 2018). The valuation of course differs according to the interpretation chosen. In case, Bitcoin, for example is considered as an intangible asset, the value is measured as fair value, excluded any accumulated amortization or impairment, with no amortization being expected in most cases for cryptocurrencies (PwC, 2019). In this case, the value increases should not be accounted, according to the prudence accounting principle, while impairments should appear in profit & loss (PwC, 2019). In case they are considered as inventory if, for example, an entity acts as financial intermediary for cryptocurrencies, they are registered at the fair value deducted with the cost to sell in profit & loss (EY, 2019). An important challenge arising from these definitions is the *Fair Value* measurement. IFRS 13 treats the *Fair Value Measurement,* defined as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date*"* (PwC, 2019). This requires requiring for it to have an active market where to look for a superficial price, a principal market with the greatest level of activity, the market in which the entity would

normally enter for selling the asset and, finally, a fair value definition (ICAEW, 2022). Koinju (2021) provides an interpretation of this standards, proposing to start with the active market to indicate a Level 1 and Level 2 inputs, being respectively the "crypto-to-fiat" and the "crypto-to-crypto" values. Then, the principal market should be defined, which was already shown to be Binance from the data in the previous chapters. Later, the principal market should be found using geographic criteria and selecting from a pool of potential exchanges. Finally, the fair market value shall be computed by taking the Level 1 input and doing either an average or a median daily price, although a median price is suggested to exclude potential extreme values that Bitcoin's high volatility entails (Koinju, 2021). An example of this last step is provided by one of the respondents, who indeed used an average of the price in the 100 days prior to the registration (Interview 10 – see Appendix 3).

CoinDesk, while describing the main practices in the USA concerning taxation on capital gains arising from the sales of crypto currencies, lists three main methods for calculating the surplus on the initial investment, being FIFO (First-In-First-Out), LIFO (Last-In-First-Out) and HIFO (Highest-In-First-Out) (Roth, 2022). Here too, different methods can be applied as no specific provision has so far been published. A practice which is widely adopted in Italy among business consultant is the LIFO (Last-In-First-Out) method to compute the surplus when cashing out (Interview 16 – see Appendix 3). In Switzerland, great flexibility is allowed by the few guidance coming from the legal accounting framework and by the high number of SMEs, confirmed to constitute 99% of all the companies present in the country: *"the fiduciaries do what they want as small companies do not need to be audited"* (Interview 17 – see Appendix 3), also mentioning the fact that the government published a report at the end of 2021 (on the 31/12), advising the companies on the fair value of different foreign currencies, including the main cryptocurrencies, in order for these organizations to correctly update their Balance Sheet and calculate the unrealized gains (Interview 17 – see Appendix 3). Michael also claimed that, since no specific guidance is given, large companies employing a financial team and entailing precise measurement methods and treasury strategies do not have a general preferred way to calculate the fair value at the end of the year, with the Swiss practices being various (Interview 17 – see Appendix 3). Looking at the report published by PwC, the main calculations are represented in Figure 18 (PwC, 2020).

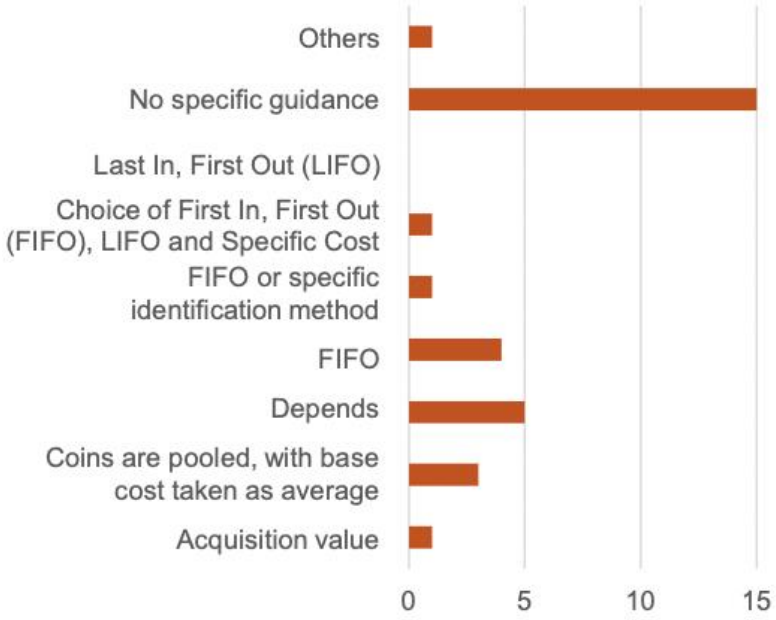

Figure 18: Different approaches to calculating base costs for gains on disposal of digital assets (PwC, 2020)

These results seem to confirm what was provided by the interviews as well as from the other secondary research. In fact, no specific guidance ranking first among the answers given and offering flexibility according to either the business consultants' interpretation or the companies policies, with large companies required to be consistent regarding the overall measurement methods within the financial statements (Interview 17 – see Appendix 3), with the answer "Depends" ranking second as of response rate (PwC, 2020). Contrarily to the Italian general practices adopted by business consultants, FIFO seems to be preferred to LIFO's measurement method (PwC, 2020). Overall, no specific tax benefit can be observed within different jurisdictions when a business earns a capital gain on the sale of Bitcoin or other cryptocurrencies, with the main advantage relating to the different rates applied to the financial surplus. Some countries are emerging more than others as fiscal heavens for crypto holders, being the same countries that are considered a paradise due to low taxation even for other impositions, such as the income taxes (Tax Justice, 2021) and trying to define and catch an opportunity to attract more foreign investment in this promising industry.

Chapter Five: Future trends concerning crypto payments

While analyzing the current state of the market following the decision of accepting Bitcoin as a form of payment, the future trends either potentially boosting or penalizing a wider option of Bitcoin and other cryptocurrencies as a form of payment should also be considered. Indeed, a common element among all the respondents is that they are all entering this niche market because they hope or expect some positive developments in the future. The most cautious ones were starting to accept it mainly for brand positioning and visibility, therefore directly converting the transactions in Bitcoin in fiat currency. However, the majority could be considered as be an early entrant in a potential future revolution for the financial industry and to accumulate a high-volatile but also high-growing asset. Therefore, moving to the Topic 5 treated in the interview, the first general question that was asked to the respondents was *"What do you think about future trends do you see concerning payments in Bitcoin?"*. The answers are summarized in Figure x, showing the response rate over a total of 18 potential trends concerning this industry in the foreseeable future.

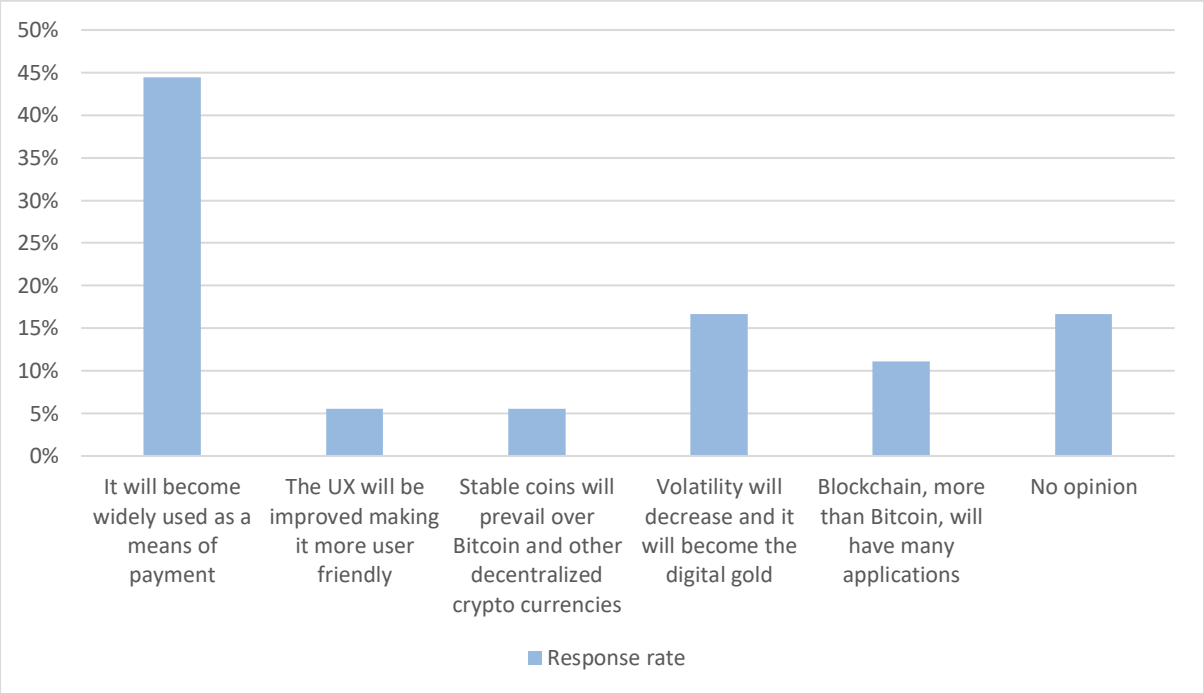

Figure 19: Answers to *Question 8:" What do you think about future trends concerning payments in Bitcoin?"* (18 answers, from 05/03/2022 to 02/05/2022)

A dominant position can be noticed from this graph as 44% of the interviewees are convinced that Bitcoin and the public distributed ledger is the future of payment. To explain this, one should highlight the fact that most of the respondents are indeed early entrants in this payment circle, being mostly fan of Bitcoin's technology and philosophical principles. Moreover, a general tech optimism can be noticed as these firms and entrepreneurs are inclined to observe emerging technologies and adopt them without fearing innovation. However, all of them recognized that they could not predict a precise period for a broader adoption, observing within the respective societies and industries a general distrust on Bitcoin and other cryptocurrencies, due mostly to lack of education on the topic. To provide an example, Robert Bregy claimed he has been contacted by technological firms specializing in Blockchain's solutions, communicating him that more instructions is needed at the university level to better educate young graduates for the future (Interview 13 – see Appendix 3). At the second place, respondents with *"No opinion"* or thinking that *"Volatility will decrease and it will become the digital gold"* can be found, both constituting 17% of the answers. Not having an opinion was classified with answers such as *"we have started to try this out of curiosity. We will see what happens in the future"* (Interview 8 – see Appendix 3) or when the discussion did not go around Bitcoin as a mean of payment, but it regarded specific topics such as the financial performance, during Jason Freeman's interview, or the financial registration, treated in Interview 16 (see Appendix 3). Moreover, a relevant share also believed that this is the moment to start accepting Bitcoin as a form of commercial payment due to the lack of regulation provided at the countries' level, boosting volatility but also short-term performances. Indeed, it was declared by Dario that he is afraid of regulation because *"when it will be controlled by hedge funds and institutional investors, the yearly profit will normalize, equaling maximum 3-4%"* (Interview 6 – see Appendix 3). The opinion that Bitcoin will lose its speculative characteristic when being regulated by jurisdictions and widely adopted in the real economy is also shared by Jason Freeman, who deems this scenario as *"extremely likely"* (Interview 15 – see Appendix 3) and by Michael Merz, which points the confusion surrounding politics, accounting, and fiscal authorities (Interview 17). Another opinion is that blockchain technology, more than the cryptocurrencies such as Bitcoin, will play a fundamental role within the future economic outlook, mentioned 11% of the times. Robert Bregy justifies it by observing the growth in investment on blockchain companies and the tokenization trend, which is affecting many traditional industries, with Non-Fungible Tokens constituting an interesting example (Interview 13 - see Appendix 3). Convinced by that, Andrè Meier is planning on the tokenization of the hotel rooms at Dolder Grand Hotel AG in Zurich as a further option for

future innovation (Interview 11 - see Appendix 3). Surprisingly undervalued during the interviews, stable coins were mentioned only by 6% of the respondents as a potential future opportunity for cryptocurrencies as a form of payment. Despite this fact, their stability, given by the fact of following the price of fiat currencies, makes them a viable alternative to the main critique which is addressed to Bitcoin, being the extreme volatility (Interview 3 – see Appendix 3). Lastly, Yves Longchamp mentioned another important element which has been neglected, meaning the user experience, which does not constitute an advantage for Bitcoins' mass adoption (Interview 3 – see Appendix 3). Indeed, if transferring fiat currency through the new fintech developments is extremely easy for the user, Bitcoin's storage and transfer are not ideal for the average *"lazy person"*, as briefly mentioned by Gianpaolo (Interview 7 – see Appendix 3).

Starting from therse results, potential positive trends, meaning that they could favor mass adoption and negative ones, potentially holding it back, are going to be discussed. The relevant future developments to be discussed are *stable coins, central banks' opinion and integrational within national legislations as a legal tender.* On the other hand, future barriers that may arise are linked to the *sustainability and security issues*, having already discussed the volatility of Bitcoin thoroughly in chapter three.

Stable coins

Stable coins, as already anticipated, are an increasing trend as demonstrated by the Lugano's case with the previous launch of the Luga coin, pegged to the CHF, and the partnership developed with Tether as part of the Lugano's plan B (Interview 13 – see Appendix 3). A comprehensive definition is provided by Coinbase suggesting that: "a stable coin is a digital currency that is pegged to a "stable" reserve asset like the U.S. dollar or gold. Stable coins are designed to reduce volatility relative to unpegged cryptocurrencies like Bitcoin." (Coinbase, 2022). As highlighted by this definition, the main characteristic of these digital currencies is the lower volatility provided by the fact that their prices follow the ones of more stable and secure assets such as fiat currencies. At the time of writing, the main stable coins by market capitalization are all pegged to the USD, and they are *Tether (USDT), USD Coin (USDC), TerraUSD (UST) and Binance USD (BUSD)*, all being listed within the top 20 cryptocurrencies by market capitalization (CoinMarketCap, 2022), therefore constituting an important part of the overall market.

Therefore, a specific question, after the general inquisition on what the respondents thought about future trends in crypto payments, regarded specifically how they considered stable coins in this context. The answers are represented in Figure 20.

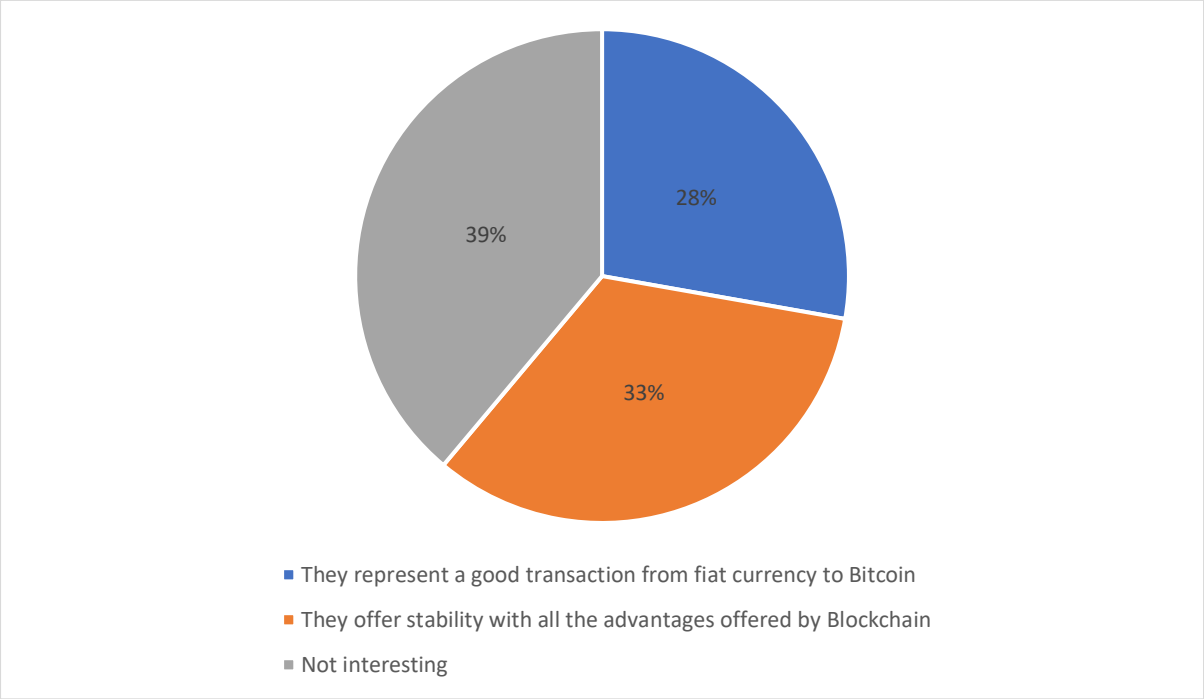

Figure 20: Answers to Question 9:" *What do you think about stable coins?"* (18 answers, from 05/03/2022 to 02/05/2022)

One can notice that most of the respondents (39%) does not consider stable coins to be interesting, in their opinion, for the future of crypto payments, although the opinion resulted to be almost equally split in this case. The justification given by whom did not consider stable coins as interesting as their growth would suggest is linked to their price, pegged to a stable asset, and therefore not offering the opportunities provided by original cryptocurrencies and, on a more ideological level, to the fact that following the value of assets such as fiat currencies goes against certain principles, which govern, for example, Bitcoin, mandating a pure offer-demand law to determine the value of the digital good. Andrè Meier, for example, does not consider stable coins a viable alternative to the payments in fiat currency or cryptocurrencies because price swings and the original features that attract a certain clientele are not present (Interview 11 – see Appendix 3). Secondly, 33% of the respondents declared they look positively at stable coins due exactly to the fact that they entail a lower volatility while offering certain advantages related to the decentralization and the blockchain technology such as lower cost of transaction (Interview 1 – see Appendix 3) and lower transaction time, which is

especially useful when doing having international suppliers, employees, or partners (Interview 4 – see Appendix 3). In fact, Circle, issuer of USDC's stable coin, highlights the potential importance of their stable coin for trading goods in areas such as Africa, Latin America and Southeast Asia (Shah, 2021). All these important features are confirmed by Coinbase, which lists among the main advantages of using stable coin the fact that having a bank account is still not necessary and sending money internationally is faster and cheaper as well as volatility is minimized (Coinbase, 2022).

Finally, 28% of the respondents interestingly mentioned the fact that stable coins can represent a positive booster for future mass adoption of Bitcoin and other cryptocurrencies as they represent a bridge between fiat currencies and pure digital currencies. Robert Bregy claims: *"I am convinced that everybody who already made the first step accepting stable coins will then start accepting Bitcoin. Stable coins represent the comfort zone which is needed to get closer to cryptocurrencies"* (Interview 13 – see Appendix 3). Alessio as well thinks that Tether can represent a positive transition to make people aware of the benefits provided by blockchain to later pass to the adoption of Bitcoin: *"I think that stable coins, of which I only consider Tether, are positive for Bitcoin in a way that they are useful to then reach the mass adoption"* (Interview 10 – see Appendix 3). Overall, the increasing trend represented by stable coins is confirmed by external literature, with Deutsche Bank comparing the aggregate stable coins' market capitalization to the ones related to Bitcoin and Ethereum over time, observable in Figure 21 (Laboure, 2022). Moreover, Morgan Stanley highlighted in a recent report the growth in stable coins issuance of more than $150 billion from the beginning of 2020 as well as incoming regulations on this topic (Shah, 2021). One in the USA, with a report from the President's Working Group (PWG) suggesting issuers, such as Circle, to be regulated as traditional banks, or the European's MICA regulation (Shah, 2021).

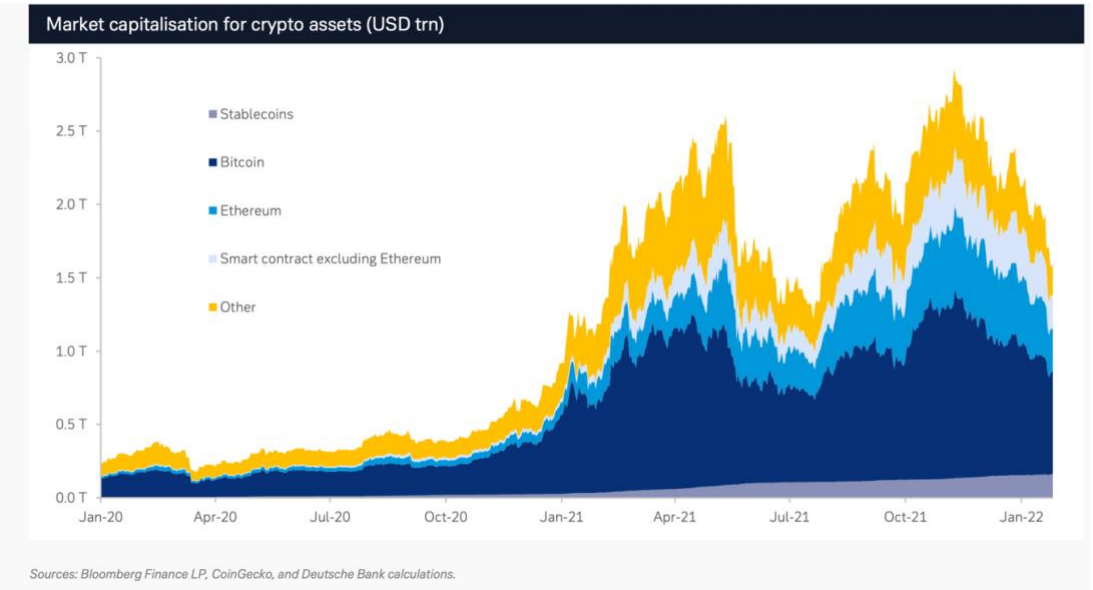

Figure 21: The market value of the stable coins' ecosystem is growing fast (Laboure, 2022).

Central banks

Central bank issuance and holding would surely be key for a future wider adoption of Bitcoin or other digital currencies in the real economy. As suggested, miscellaneously, during the interview with Michael Merz suggesting that *"Cryptocurrencies cannot enter into the voice of cash & equivalents as, even though becoming legal tender somewhere, are not backed by a central bank"* (Interview 17 – see Appendix 3). Therefore, what is the opinion of the central banks and how could it affect future adoption of cryptocurrencies as a form of payment?

Increasing attention is being given to the developments of the *Central Bank Digital Currencies* (CDBC), being "a digital form of a country's fiat currency that is also a claim on the central bank*"* (Atlantic Council, 2022). It was highlighted by Morgan Stanley that usage of cash is generally dropping especially in countries such as Sweden, which amounts to less than 10% of the overall transactions (Shah, 2021). Furthermore, this project can be deemed as a global collaboration of central banks with more than 100 of these institutions engaging in studying the technicalities and the implications of a global coordination on digital currencies (Shah, 2021). The website cdbctracker.org reports all the issuances connected to the central banks participating to the project as well as their development status, which can be observed in the map below, updated to the moment of writing (CBDC Tracker, 2022).

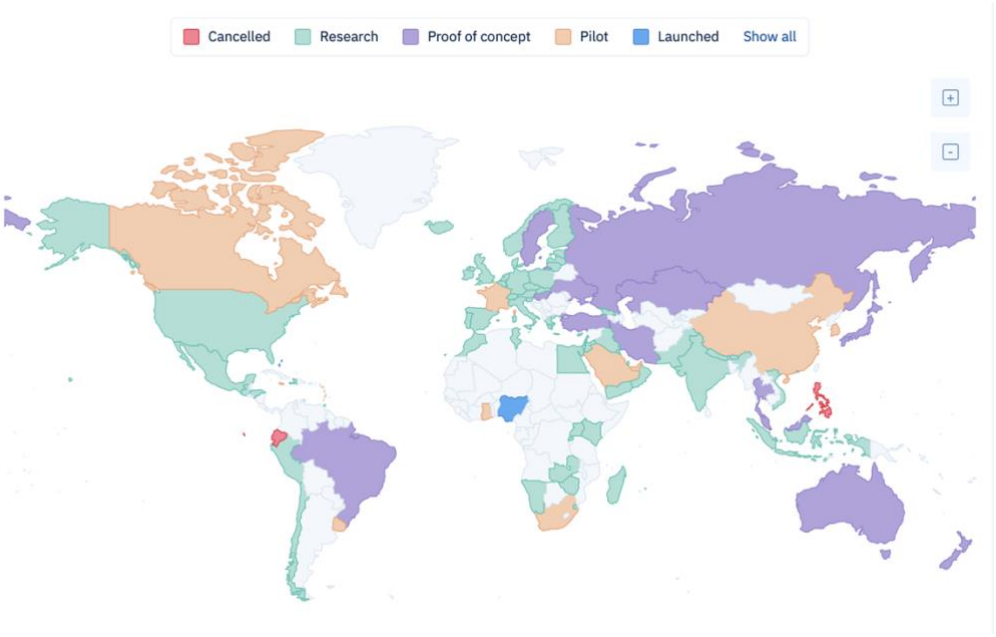

Figure 22: Central Bank Digital Currencies Status (CBDC Tracker, 2022)

It can be observed by the map that the project is still on work-in-progress phase with only one CBDC launched by the Nigerian Central Bank, the "e-Naira" (CBDC Tracker, 2022). However, many other central banks find themselves in the proof of concept and pilot phases, with Russia and Sweden (mentioned above with a dramatic decrease in the usage of cash), with the "e-krona" and Russia, with the "Digital Ruble", while in the pilot phase one can find, among others, China with the "e-CNY" (CBDC Tracker, 2022). It is argued that these currencies could help solving some of the problems faced by central banks such as timing and cost of cross border payments and inflation. The former, as also highlighted by the research supporting this report, can be solved through the implementation of national and international blockchain infrastructures, which might then be fueled by CDBCs, and therefore dramatically decreasing the cost and time to transfer money internationally (Shah, 2021). Moreover, the case of central banks printing additional cash to boost the economy in crisis times, such as the Covid-19 one, is another important use case potentially boosting digital currencies in the future (Faria, 2020). However, an important difference between CDBCs and cryptocurrencies shall be underlined, being the fact, the Bitcoin and other cryptocurrencies are decentralized and limited in supply while CBDC are issued by central banks and their supply is dependent on the demand for these assets (Dickens, 2021). In fact, these attempts by central banks can be considered to reflect what 11% of the interviewees claimed, hence that blockchain technology, on which CDBCs are based, will play a more important role in the real economy compared to cryptocurrencies like Bitcoin. Moreover, this global project can be seen as a "strike back" against Bitcoin of

central banks (Quiroz-Gutierrez, 2022) with a general distrust of these institutions on decentralized public ledger, due mainly to the lack of institutions backing these assets in case their economic state turns to damage the economy. At the time of writing, even the Swiss national banks declared itself not to be inclined in considering Bitcoin a currency reserve, as the Chairman Thomas Jordan declared: “from the current perspective we do not believe bitcoin meets the requirements of currency reserves, that's why we have until now decided not to have bitcoin on our balance sheet" (Reuters, 2022). Overall, the inclination of central banks seems to be positive towards the opportunities provided by blockchain technology for international payments as demonstrated also by the first speech of Christine Lagarde as the president of the ECB stating that the European Central Bank should play an important role in enhancing new technologies that may challenge the traditional banking system (Mehilli, 2018).

Future integration in national legislation

Although it was demonstrated over this research that consumers will still have some reservations in employing assets they do not fully understand for daily payments, the integration of crypto assets and crypto currencies in some legislation may surely boost adoption, with USA believed to play an important future role (Baur D. G., 2015) and Germany already setting the example by developing a legal definition of this new asset class (Arli, 2020). The main regulatory advancements can be observed in this scheme provided by Deutsche Bank (Figure 23), in which one can observe a general acceleration which might bring a more harmonized regulatory framework all over the most advanced economies (Laboure, 2022).

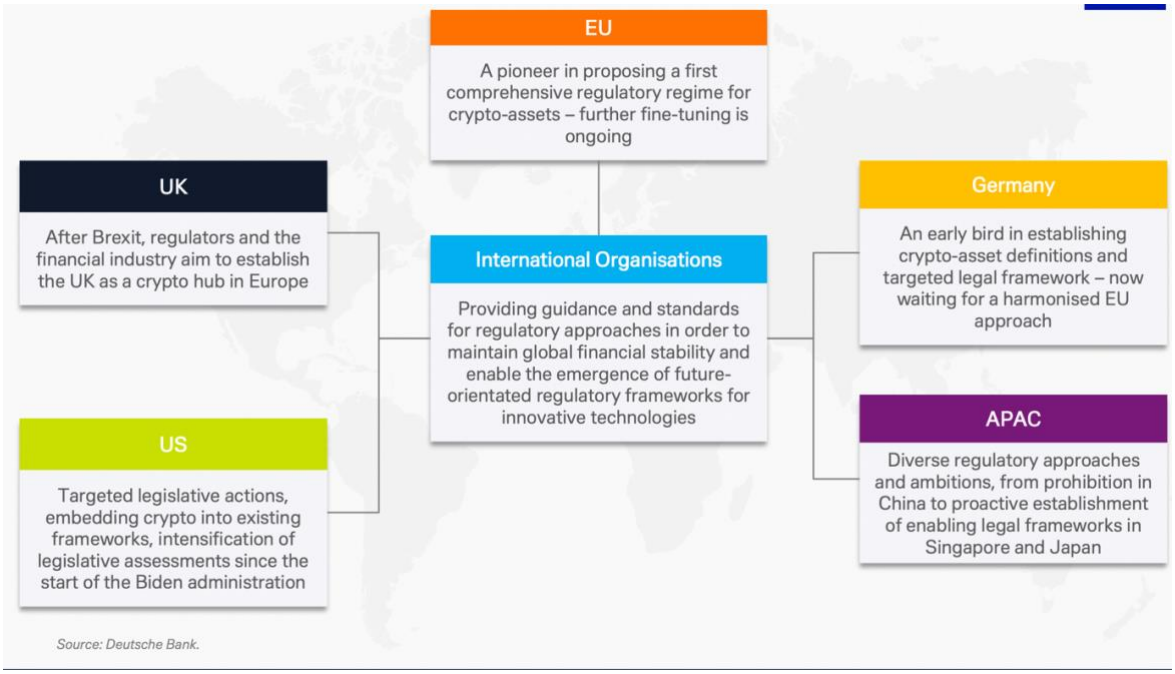

Figure 23: Key regulatory developments – Global landscape (Laboure, 2022)

However, one can notice a faster and more convinced adoption among other developing economies such as El Salvador and Central African Republic adopting Bitcoin as legal tender. Deutsche Bank analyzes the former case, which, when writing, has already been in place since more than 6 months, by pointing out that the reasons why integrating Bitcoin as a legal tender were linked especially to the cost of sending money from abroad of El Salvador's population living in different country compared to their family and to increase financial inclusion with the majority of the population not having a bank account (Laboure, 2022), as pointed out in chapter two. However, El Salvador has also found a general opposition with the IMF urging the country to revert this decision (BBC, 2022), the rating agency Moody's downgrading their credit to CAA1 and between 70% and 80% being against the Bitcoin law (Laboure, 2022).

Factors potentially impeding mass adoption

Apart from being highly volatile, Bitcoin received two main criticisms, one linked to the Proof-of-work being highly consuming in terms of energy while the other being linked to the security which can be divided into cyber attacks, security for the investors and potential criminal activities due to the anonymity ensured by Bitcoin. These negative factors were also pointed out to the participants of the qualitative analysis, with about 60% of them declaring they were told about these factors at least once as they represent the pioneers in their respective fields,

being among the early adopters of Bitcoin as a form of payment. When asking the respondents what they thought about these critics received by Bitcoin, I encountered generally negative answers, as shown by Figure x, showing the response rate to the question "*What do you think about criticisms on sustainability and potential criminal links?"*.

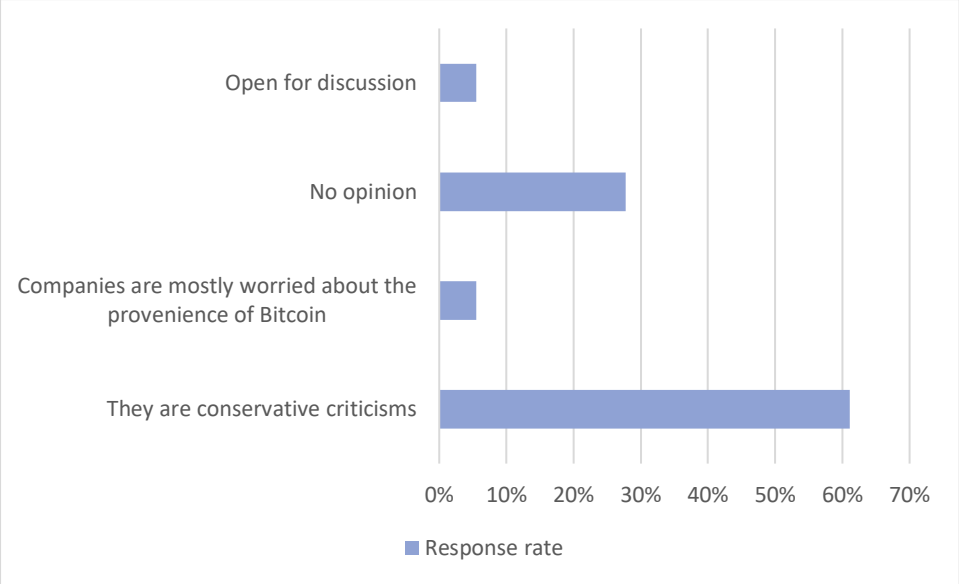

Figure 24: Answers to the *Question 10: Did you receive any criticisms due to the criminal links or the energy consumption?* (18 answers, from 05/03/2022 to 02/05/2022)

One can notice a major negative consideration of these criticisms, with 61% of the sample declaring that these negative opinions come from conservative environments, being either people that do not understand Bitcoin, the idea behind it and its technology or institutions having all the interests in seeing the Bitcoin's project failing, such as the traditional financial sector. Overall, a feeling of discomfort towards these aspects was shown, mainly because most of the respondents, being pioneers, strongly believe in Bitcoin. Secondly, "No opinion" was given on these aspects, mostly representing these activities or people who did not hear of these criticisms or never received them, therefore not being touched by them. The same rate is finally shown for those people being "open for discussion" or stating that the main preoccupation for companies holding a high share of Bitcoin within their treasury are mostly worried about the provenience. Here, Denis Scheller tells that *"Mostly on the environmental factor an honest discussion is deserved, bringing data and potential solutions, not only slogans"* (Interview 14 – see Appendix 3). On the latter point, Yves Longchamp claims that *"intermediaries are needed when companies decide to invest considerably on Bitcoin to check that these funds are not coming from suspicious activities, such as money laundering"* (Interview 3 – see Appendix

3). Looking at these results, a brief digression is developed on the sustainability and security issues.

Sustainability

Specific comments were then asked on this topic, which is one of the most discussed on Bitcoin, also driving the decision of a big corporation such as Tesla to stop accepting them as a form of payment (BBC, 2021). The answers are summarized in the following pie chart (Figure 25).

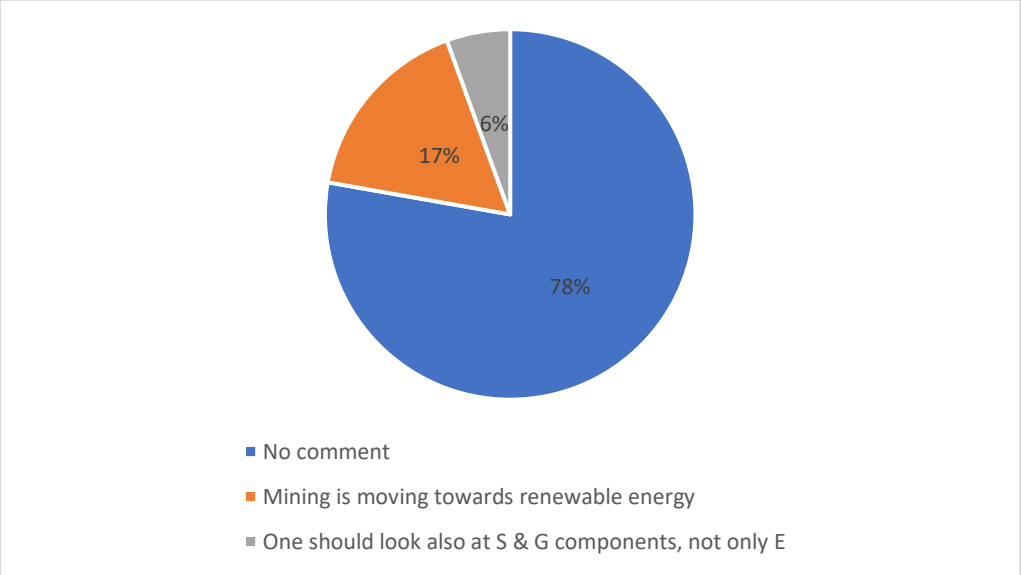

Figure 25: Focus on the environmental side of *Question 11: "What do you think about them?"* (18 answers, from 05/03/2022 to 02/05/2022)

Following the trend observed in the paragraph above, even fewer specific comments were provided on this issue, with 78% deciding not to answer to this question. Two comments were pronounced. The first (17% of the time) pointed out that Bitcoin mining is moving towards renewable energy, therefore solving the high consumption problem caused by the considerable computing power needed under the PoW mechanism. The other point mentioned (6%) regards the ESG boards of many companies only focusing on the Environmental aspects, while neglecting the Social and Governmental factors which are highly favored by a wider utilization of Bitcoin. On the increasing usage of renewable energies for Bitcoin mining, Robert Bregy claimed that, in implementing a newly efficient technological solution some initial trade-offs should be accepted adding that *"we know that mining is turning to renewable energies massively, as much as they can as well as improving the scalability of Bitcoin. Then, we should*

compare energy consumption among industries to determine whether there is an issue, for example home appliances or gaming industry compared to Bitcoin's consumptions" (Interview 13 – see Appendix 3). This trend is confirmed by Fabio, living the context of Bitcoin Valley in Rovereto, Italy confirming that they mostly employ renewable energies (Interview 9 – see Appendix 3). Looking at these results, one should ask two questions. Is there really an environmental issue? Is mining industry really shifting towards renewable energies?

To tackle the first question, some research has been developed on this topic. Vranken (2017) tries to estimate the energy consumption of Bitcoin mining comparing four different generations of CPUs, with the oldest version being also the least energy effective and noticing that with the new generations of CPUs and the efforts developed by the miners to form mining pools, with the largest ones created which had been created in China before the ban as already mentioned in chapter two, led to a mining race which resulted in an oligopolistic market (Vranken, 2017). In terms of energy consumptions, this study concluded that, considering the different generations of CPUs and the mining pools which are being formed, the energy used for Bitcoin mining is relatively small, 16 Pj per year, compared to other comparable practices such as gold mining, 500 Pj per year, with a final remark that with the mass adoption of Bitcoin this race could increase and therefore the energy consumption (Vranken, 2017). Jiang (2021) studied in-depth the case of China, which is the country where the most energy is consumed for Bitcoin mining, found that 13 million metric tons were consumed in the country from 2016 to 2018 and that the PoW consensus mechanism resulted to be an energy intensive protocol, potentially undermining global sustainability efforts (Jiang, 2021). Deutsche Bank compared the yearly electricity consumption in TWh of Bitcoin mining with emissions from different nations, with Bitcoin found to consume more than countries such as Argentina and Norway, as shown in Figure x below (Laboure, 2022).

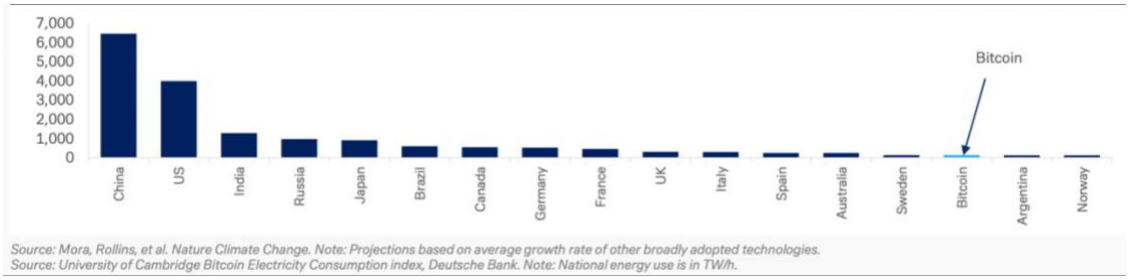

Figure 26: Annual electricity consumption (TWh/year) (Laboure, 2022)

Once established that a potential public issue concerning energy consumption may constitute a barrier for mass adoption. The solution proposed by the respondents shall be examined. Still Deutsche Bank observed an increase of renewable energy usage in 2021, with 76% of the miners employing renewable energies (Laboure, 2022), therefore highlighting a high share of clean energy used for mining in the Bitcoin industry with a more sustainable power mix, to compare with countries' consumptions, than USA, using about 30.5% of renewable and China, employing less than 15% (Holmes, 2021). Therefore, the current and future trends seem to confirm the statements gathered during the interviews, with the Bitcoin mining industry gathering into mining pools employing newer a more energy efficient technologies and powering themselves with an increasing share of renewable energies.

Security

Even on the issue related to the security of this instrument, a specific question asking the opinion of the respondents was posed, with still a result of 78% of them not having comments on this weakness. Figure 27 then shows that 11% of them claim that, still, most crimes, such as money laundering, are committed with cash within the traditional financial system, since performing criminal activities on a public ledger would result riskier. Still, a minority comments that the government are not equipped in terms of attitude and knowledge to understand Bitcoin, therefore connecting this accusation to a lack of understanding on the concept of this asset. Finally, the need for intermediaries to perform the due diligence on the provenience of Bitcoin was highlighted, to allow mass adoption and re-assure companies investing heavily on this asset and not wanting to be associated with any illicit activities.

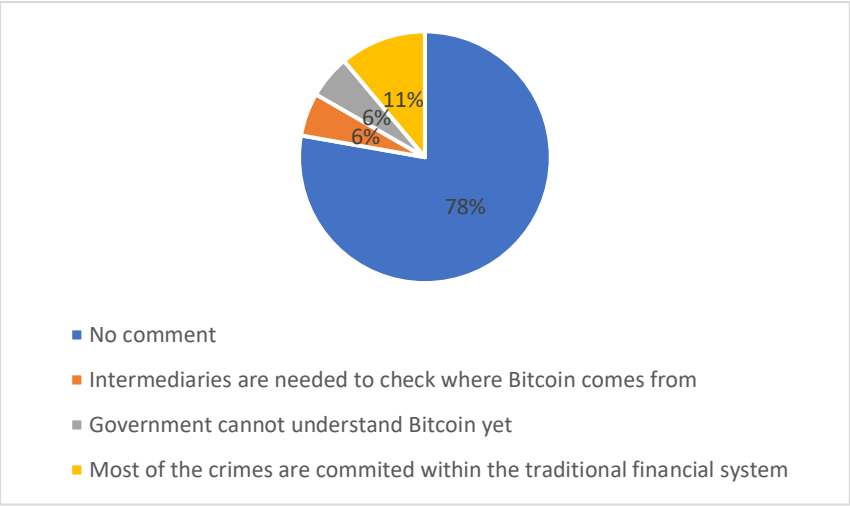

Figure 27: Figure 25: Focus on the security side of *Question 11: "What do you think about them?"* (18 answers, from 05/03/2022 to 02/05/2022)

Examining in-depth the comment on the need for intermediaries, one can notice a need to protect the investors in this novel and, mostly unknown, digital environment. Yves Longchamp, when commenting about the need for intermediaries, especially when investing heavily on Bitcoin and other cryptocurrencies, mentions the fact that many clients, being mostly Swiss family offices, worry about the potential links of their investment to criminal activities as well as potential cyber-attacks (Interview 3 – see Appendix 3). Moreover, the fact that the government bodies cannot fully understand these assets is also a sign that some form of protections both for private and corporate investors are needed to boost adoption.

Why is protection needed and from what? Deutsche Bank points out a low level of financial literacy among the adults surveyed living in the 38 countries forming the OECD, an increase in ransomware activities related to cryptocurrencies, with scammers gaining about $2.5 billion in 2020 as well as digital currencies remaining the largest source of illegal activities (Laboure, 2022). Faria (2020) also claims that the collapse experienced in 2018 can be explained by the high number of hackers taking advantage of people investing in different coins, as those are not backed by official institutions (Faria, 2020). In terms of hackers' risks, two main attacks can be deemed to constitute a potential fear barrier for wider adoption of Bitcoin as a form of payment, one on the consumer side, being the attacks on the wallets, and on the merchant side, hence the "double spending attack" (Faria, 2020). The former was found to be riskier when holding the coins in online wallets, as already pointed out on the comparison between different wallet types in chapter two (Vyas, 2014). The double spending attack consists of, basically, an attacker faking a transaction, by sending coins to the receiver and, at the same time, to another address which might be in control of the same attacker, consisting finally of a payment fraud (Vyas, 2014). Bamert (2013), however, shows that it is very unlikely that a double spending attack ends up being successful, estimating 0.088% chance for the attacker to complete the attack and, therefore, concluding that Bitcoin can be considered as an alternative for faster cashless payments (Bamert, 2013).

To protect investors from scammers, Deloitte claims that regulators are becoming more and more comfortable with blockchains and can, therefore, develop legal frameworks which can protect the lowest liberated investors not to end up losing wealth on these decentralized assets (Deloitte, 2020). Denis Scheller mentions an important regulation coming from the EU, tackling various issues concerning crypto assets and that can be considered as a GDPR for these

digital assets, being the *Markets in Crypto-assets (MiCA) Regulation* (Interview 14 – see Appendix 3). This recent legal framework tackles important issues concerning consumer and investor protection, addressing financial stability in the crypto markets, as well as including measures against criminal activities such as money laundering or financing terrorism (Deloitte, 2021). Thus, tackling this last issue, is there really an issue of high rate of criminal activities being performed with crypto? The answer provided by 11% of the respondents seem to suggest that still most crimes is performed with cash rather than on a public ledger where it might be easier to find out, although anonymity is an important feature of Bitcoin. In fact, while it is possible to identify the IP addresses of the payer and the receiver, the personal identities remain secret, suggesting that criminals and money launders are increasingly employing cryptocurrencies to facilitate their activities (Lidstone, 2018). Lindstone (2018) analyzes this issue as a barrier for a certain category of professionals, being lawyers, who might be restrained to accept legal fees in cryptocurrencies due to ethical considerations (Lidstone, 2018). However, it was suggested by Alessio a study published by the Bank of England in 2017, showing that 75% of money laundering within the country was committed within the traditional financial system, with only the 0.3% being committed on the decentralized public ledger (Interview 10 – see Appendix 3). Moreover, services provided by intermediaries such as the *Know Your Client (KYC)*, with institutions such as Seba Bank or even exchanges, such as Coinbase or Bitpay (Lidstone, 2018), checking the provenience of the coins, to make sure that investors, such as Swiss family offices, do not get involved with assets related to criminal activities (Interview 3 – see Appendix 3). Moreover, increasing regulations being developed institutionally can grant a higher regulation and control on the market, preventing these activities to be performed on public ledger, and boosting adoption within the real economy, by fully taking advantage of the opportunities provided by Bitcoin and other cryptocurrencies.

Conclusion

To conclude, the crypto payment option for companies was analyzed throughout this report. The research focused on the acceptance of Bitcoin as a form of payment, as it is the most widely known and accepted cryptocurrency as well as representing more than 40% of the total cryptocurrencies' market capitalization. However, this study intends to drive conclusions which can be applied to all currencies. Moreover, the research's results are mainly applicable to Italian and Swiss contexts, with most of the companies and experts' interviewed operating in these two countries, which can also be deemed as two advanced countries in terms of digital currencies' adoption in the real economy (Statista, 2021). After interviewing 17 people, representing 10 companies accepting Bitcoin and 7 industry experts, five main topics were discussed. A summary of the highlights obtained from both interviews' analysis and secondary data employment is provided in this section. After discussing these points, an answer to the research question will be given. Finally, limitations of the research, which could be eliminated by future studies, will be examined.

The first topic concerned the motivations for which these companies started to accept Bitcoin or, according to the experts, were the main ones for business venues to integrate it among their revenue mix. The intentions of these companies to early adopt this payment solution was important to examine to better understand expectations following this decision. It can be observed that Brand Positioning and Visibility were the two main factors among the different reasons provided. Hence, it can be seen more as a marketing tool either to be perceived as an innovator, according to the first factor, or increase visibility and get external free advertising, related to the latter aspect. The opportunity to increase sales was also mentioned, more as a potential rather than a fact. Then, offering an alternative payment to clients was also cited. In some cases, also the explicit requests from the clients also drove this decision.

Secondly, treating the potential commercial benefits, most of the respondents did not observe a consistent increase of sales due to this decision, although some of the respondents already started to accept Bitcoin for more than 5 years and they find themselves located in so-called "crypto valleys". Overall, a demand from consumers to spend Bitcoin was not found, being BTC mainly considered as an investment rather than a mean of exchange. The positive answers came from respondents working in international environments or in a context where regulation

favored the spending of Bitcoin and cryptocurrencies, such as Lugano, recently starting to accept Bitcoin to pay taxes.

Thirdly, after examining one of the most discussed issues in accepting Bitcoin as a form of payment, being its extreme volatility, the main re-deployment methods were analyzed. Holding the revenues in Bitcoin was found to be the most popular strategy, given the fact that the sales in Bitcoin did not represent a high share of the overall revenues and the fact, that being small companies, these organizations had the flexibility to change the treasury strategy quickly and with no relevant costs embodied. Directly converting into fiat currency was also an option which was used in case a high level of daily expenses needed to be paid or when the owners of the companies were found to be more risk-averse, taking this decision more out of curiosity and as a marketing strategy, while looking at future market developments. Afterward, paying suppliers or employees was also mentioned as an option. However, this was found to be the case for companies having suppliers or employees operating in unstable economies, where the adoption of Bitcoin is faster compared to Western Europe, such as Africa, Latin America and Eastern Europe. Finally, hedging is also an option, although more for large companies investing heavily in Bitcoin or receiving large payments. The growth of futures and options on Bitcoin can be observed, although this is still not the case for SMEs accepting Bitcoin due to the average low transaction volumes and high cost of financial instruments.

Fourthly, accounting standards resulted to be mostly vague and not internationally aligned, with some legislations being more advanced than others in defining and regulating the financial registration of the new crypto asset class. In this sense, Europe recently took an important step towards integrating this asset class and spreading homogeneous practices throughout the member states. However, at the current state, interpretations are given, especially for SMEs which rely on external business consultants for the registration of financial statements. Generally, the practice is to register these assets as intangible in the Balance Sheet while simply accounting for the transaction in the fiat denomination within the Income Statement. However, the confusion created by this topic was shown by the few answers provided by the sample, which highlighted the need to call out accounting experts with some experience in treating the topic of accounting for cryptocurrencies.

Finally, when discussing future trends, many respondents believe Bitcoin will be widely adopted as a form of payment in the future, although many admitted that it would take some time to reach mass adoption. Some other comments pointed out that, after the speculative phase ends, Bitcoin will become more stable and will constitute a digital reserve of value, like gold. However, many answers pointed out that the future will be marked by the Blockchain

technology, which is already starting to be adopted in the current financial system. Stable coins, for instance, were mentioned as an interesting development, although when diving deep into it many of the respondents see it as a transition to make people aware, before a wider Bitcoin adoption. Moreover, recent integration within national and local legislations, such as El Salvador, Central African Republic, or Swiss Cities, as well as the digital currencies planned by central banks (CDBCs) suggest that institutions will move to the solution of digital currencies, one way or another. Potential barriers could be raised by the sustainability issue related to Bitcoin or the potential links to criminal activities, generally believed to be allowed by the anonymity of Bitcoin. The respondents commented the shift of Bitcoin mining to renewable energy to the former issue, while the latter was deemed to be linked to a lack of knowledge, with many crimes, such as money laundering or financing violence, being performed in cash in the current within the traditional financial system.

Therefore, after careful analysis and considering the current state and future trends, *should companies decide to integrate Bitcoin as a form of payment for their goods and/or services?*

Although a direct answer is nor possible neither desirable, a structured explanation of what companies should do based on the results of this research can be provided. First, this research focused on Bitcoin, but the results are applicable to all cryptocurrencies, provided that companies should start accepting that currency as it is, in the end, the safest and the most widely adopted. Then, extension to other cryptocurrencies can be performed while always limited to the main cryptocurrencies accepted for payment, described in chapter one. Those are Litecoin, Ethereum and other versions of Bitcoin such as Bitcoin cash or Bitcoin Lightning. Moreover, this should be taken as a way to learn more about this high growing but still emerging market, while increasing visibility, positioning the organization in a circle of innovators and, potentially, widening commercial opportunities in the future. Based on the results of these research, a company should not expect to increase topline by deciding to accept cryptocurrencies as a form of payment. Moreover, given the low cost of integration and the consulting received by the companies providing software to accept cryptocurrencies, it can be inferred that the investment is worth it. An important point is to develop a treasury strategy, if deciding to accept cryptocurrencies, due to the high volatility. For instance, being related to the share of revenues received in crypto, one could decide to hold if it lower than a certain percentage, while converting or hedging in case it constitutes a higher portion. This can be easier for large companies, having a CFO and a finance team, to develop a coherent strategy. For SMEs, an external consulting would be better off to be aware of the risk and develop a coherent strategy. The biggest pain point was found to be the accounting side, which is still

much unregulated internationally, with business consultants managing the financial statements for SMEs giving interpretation based on the few official comments. Overall, trusting external consultants who are updated on these matters is advised as, in a moment of regulatory gap, not knowing how to register a volatile asset such as Bitcoin could create issues with the fiscal authorities. However, in the future, companies should expect specific accounting principles for crypto assets. For the future, a closer look should be given to stable coins, as a safer alternative to Bitcoin and other cryptocurrencies. Moreover, increasing trends such as integration in some national legislations as well as central banks' digital currencies seem to suggest that crypto payments can be relevant in the future.

Limitations

It is fundamental to highlight the limitation of this study to provide room for improvement in future research tackling the same or similar research questions. Three main limitation areas were noticed during this research, consisting of *topic, sample and methodology*. The topic arose some limitations due to the fact of being a novel matter, briefly discussed by scientific literature and, especially, with few public data. The latter element was also a weakness as it prevented a quantitative analysis to be developed. Moreover, as all recent topics entail, the crypto payment comprises a lot of speculation and a general lack of knowledge. All of that resulted as an impediment to develop wider and more careful conclusion on this emerging topic. The sample chosen consists of SMEs and even micro companies located in Italy and Switzerland. This choice was driven by the easiness to reach these companies and convince them to participate to the research as well as from time constraints, which did not allow to broaden the sample geographically. For example, reaching to US companies, which is the business environment in which this decision is mostly being adopted, or to certain contexts such as El Salvador, could added value to the overall research. However, given the time and the resources, Italy and Switzerland can still be considered as a valid sample, allowing to drive conclusions applicable to many SMEs operating in developed economies. Moreover, the fact of interviewing mostly representatives of small and micro enterprises can be considered as a limitation since mass adoption can be favored by larger and more famous companies. However, even if a large company decides to accept Bitcoin, interviewing them is not feasible as they are public companies and they have confidentiality issues. To provide an example, a contact with an ex-Tesla employee was started. However, this person told me that, even if some employees knew something about this topic, it would be impossible for them to discuss this information due to a corporate policy which prohibits any internal data leak. Finally, the methodology consists of semi-structured interviews. Overall, a structure was used and anticipated to the respondents both for orientation during the interviews and for the analysis of the answers. Moreover, this resulted to be the most However, this way of interviewing resulted in answers which were not always interpretable. Furthermore, standardizing the answers for comparison was not always immediate, with a lot of miscellaneous comments, which, however, led the way to explore some other topics which would have not come out otherwise.

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Appendix

Appendix 1

Name & Surname	Interview number	Profession	Company Name	Nationality	Type	Interview Date
Emanuele Magrini	Interview 1	Business Developer	Bitcoin People	Italy	Expert	05-Mar
Davide Coltro	Interview 2	Business Developer	Bitcoin People	Italy	Expert	11-Mar
Yves Longchamp	Interview 3	Manager	Seba Bank AG	Switzerland	Expert	07-Mar
El Hadji Ndiaye	Interview 4	Co-founder	Bitcoin People	Italy	Expert	16-Mar
Fabio Valli	Interview 5	Business Owner	Studio Dentistico Fabio Valli	Italy	Company	18-Mar
Dario Micheletti	Interview 6	Business Owner	Caffe Danese	Italy	Company	21-Mar
Gianpaolo Rossi	Interview 7	Business Owner	Bar Mani al Cielo	Italy	Company	21-Mar
Giuliano Cipriano	Interview 8	Business Owner	Ristorante Il Doge	Italy	Company	21-Mar
Fabio De Gasperi	Interview 9	Business Owner	100-ONE Freeride Shop	Italy	Company	22-Mar
Alessio Salvetti	Interview 10	Manager	Bcademy LTD	United Kingdom	Company	24-Mar
Andrè Meier	Interview 11	Manager	THE DOLDER GRAND	Switzerland	Company	01-Apr
Bruna Carbalho	Interview 12	Business Owner	Podere La Gualda Vecchia	Italy	Company	01-Apr
Robert Bregy	Interview 13	Municipality Counselor	Lugano Municipality	Switzerland	Company	04-Apr
Denis Scheller	Interview 14	Manager	Bitcoin Suisse	Switzerland	Company	08-Apr
Jason Freeman	Interview 15	Trader	Family Office	United Kingdom	Expert	08-Apr
Giammarco Brega	Interview 16	Business Consultant	Studio Brega	Italy	Expert	29-Apr
Michael Merz	Interview 17	Manager	Bitcoin Suisse	Switzerland	Expert	02-May

Table 1: Sample Description

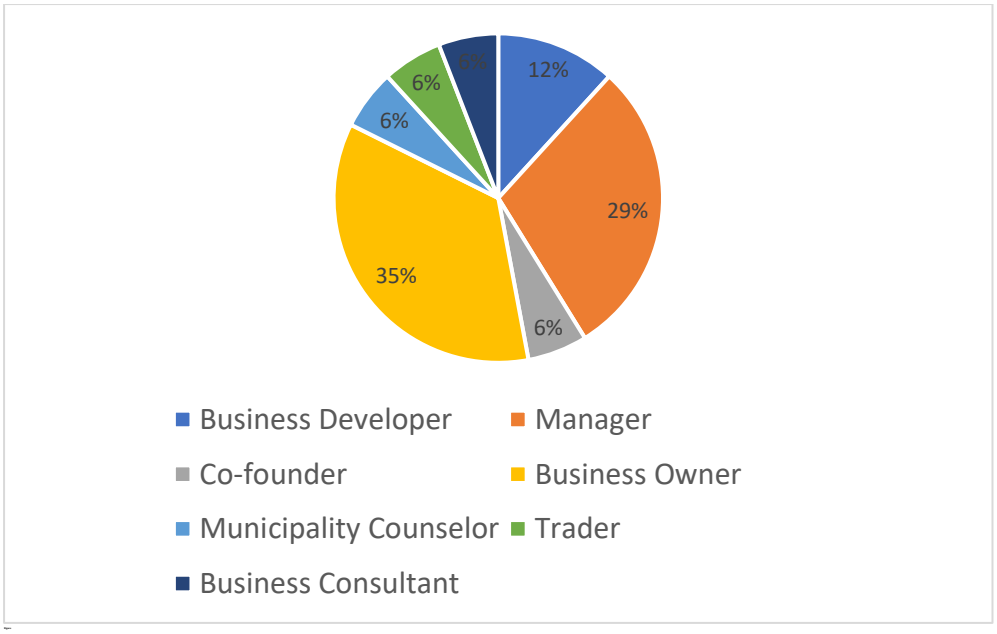

Figure 1: Sample description by Profession

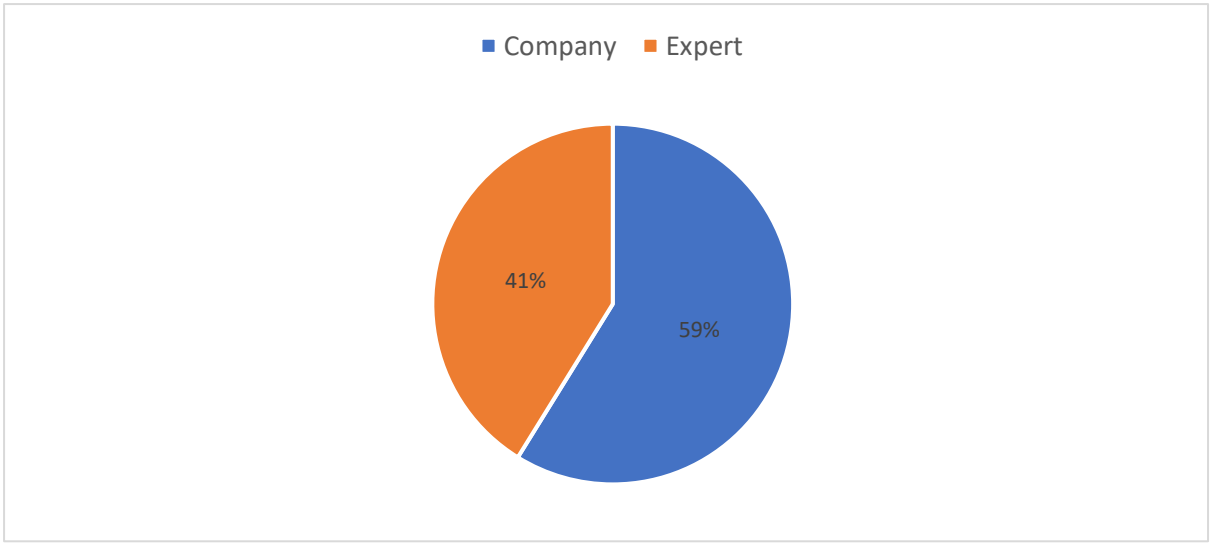

Figure 2: Sample description by Type

Appendix 2

Company Name	Activity Type	Nationality	Type	Size	Founded in	Dealign with Bitcoin since
Bitcoin People	Tech Company	Italy	Expert	Small	2019	2019
Seba Bank AG	Bank	Switzerland	Expert	Medium	2018	2018
Studio Dentistico Fabio Valli	Dentist	Italy	Company	Micro	1990	2021
Caffe Danese	Cafe	Italy	Company	Micro	1998	2019
THE DOLDER GRAND	Hotel	Switzerland	Company	Large	1899	2019
Lugano Municipality	Municipality	Switzerland	Company	Large	2020	2022
Bar Mani al Cielo	Cafe	Italy	Company	Micro	2014	2015
Bcademy LTD	Tech Company	United Kingdom	Company	Small	2020	2020
Ristorante Il Doge	Restaurant	Italy	Company	Micro	2012	2019
100-ONE Freeride Shop	Clothing Shop	Italy	Company	Micro	2002	2016
Bitcoin Suisse	Tech Company	Switzerland	Company	Large	2014	2017
Podere La Gualda Vecchia	Event Space	Italy	Company	Micro	2021	2022
Family Office	Trading Company	United Kingdom	Expert	Micro	N/A	N/A
Studio Brega	Consulting	Italy	Expert	Micro	1983	2020

Table 1: Business Type and Country

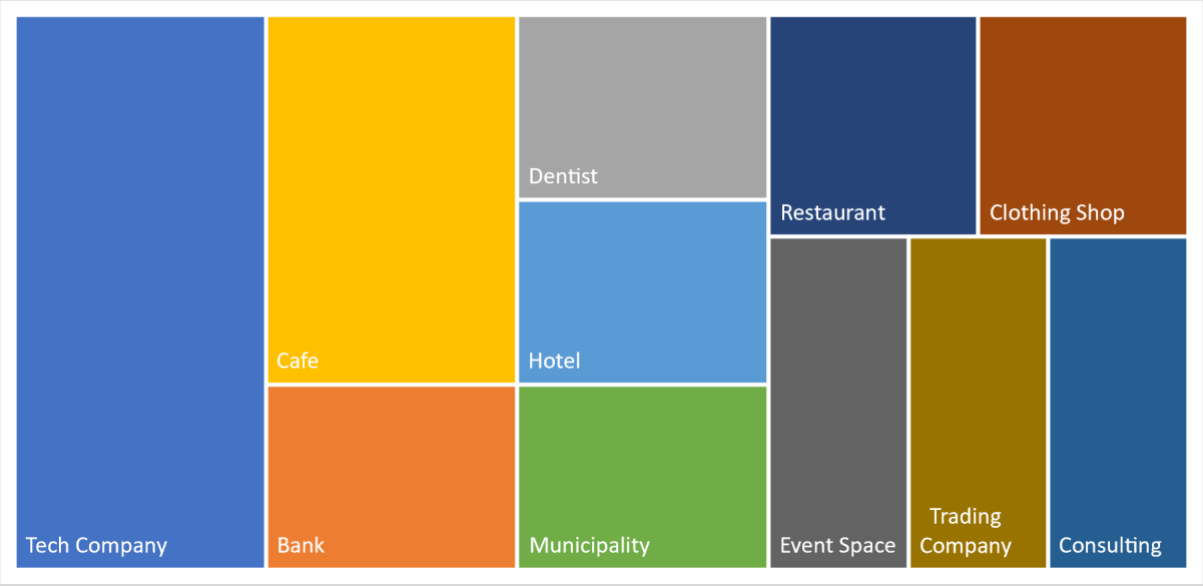

Figure 1: Companies by Activity Type

Figure 2: Companies by Nationality

Appendix 3

- **Interviews 1 and 2**

- Personal information

Name and Surname	*Davide Coltro, Emanuele Magrini*
Profession/Job Title	*Business Developer*
Company	*Bitcoin People*
Founded in	*2019*
Accepting Bitcoin since	*2019*
Type	*Technological and Market experts*

- Interview

General Questions

Interviewer: "*What does your company do?"*

Interviewee (Davide*): "Bitcoin People is a software house providing products and services based on Bitcoin's protocol as well as consulting and training activities for companies. The core business consists of selling the payment software, Bpay."*

Interviewee (Emanuele): *"It provides software concerning the Bitcoin world. There are two main product being the exchange and the payment software, both non-custodial solutions. The former is different from other crypto exchanges as the others are usually custodial of the cryptocurrencies bought by the user. We provide a solution in which the cryptocurrencies go directly to the private wallet of the user. The payment software is called Bpay. It basically is a software to manage the business activities, specifically concerning the payment in Bitcoin. The software is connected to the private wallet of the merchant. When a client wants to pay in Bitcoin and insert the transaction amount, a QR code comes out so that the payment can be completed. The coins go directly to the private wallet of the merchant. Moreover, we also offer a custodial option. This is tailor made for the merchants who want to directly convert in euros*

or other fiat currencies. For this solution we have a partnership with another software company called 'Thinkl.it'. The company sends the amount in euros to the merchant via a regular bank transfer. However, they also hold the Bitcoin".

Interviewer: *"What would you say is peculiar about your solution compared to the competition?"*

Interviewee (Davide*): "Bpay is a payment processor. The fundamental feature is that it is non-custodial. Hence, we are not a financial intermediary. The majority of alternatives are custodial, allowing you to get your fund as they are held in a bank account, or you can directly convert them in fiat. Some examples are also the famous exchanges such as Binance, Coinabase and Bitpay. However, we also offer this service if requested via thinkl.it as mentioned before. It is a partnership though, meaning that the coins are held by them afterward."*

Interviewee (Emanuele): *"I would say higher app customization, as you can receive a detailed report of the transaction adapted to Italian law, being non-custodial and a strong focus on services such as trainings for companies and after sale."*

Interviewer: *"What kind of potential you see in this market?"*

Interviewee (Davide): *"We are a crypto payment gateway. I believe we are in an early phase for this market. In the end, the software was launched in mid-2021. In Italy, I think there would be a lot of sectors that would be interested, mainly the companies working in import/export directly with emerging economies, such as India or Iran, and e-commerce companies."*

Interviewee (Emanuele): *"There is a huge potential in my opinion. The platform costs€ 450 for the activation plus the consulting and training on how to use. This usually amounts to about €100. For the future, we aim at adding premium services and more customization options. Speaking of our internal growth, we estimate a 200% growth next year only. However, probably, there is still not enough demand as there is no essential need in Italy. In other countries, with higher instability, they already implemented software to allow a wider acceptance of this payment method."*

Topic 2: *Commercial Benefits*

Interviewer Q1&Q2: "*What do you think are the main motivations to start accepting Bitcoin as a form of payment? So far, have you noticed any commercial advantage (increasing sales) after accepting Bitcoin or other cryptocurrencies as a form of payment?"*

Interviewee (Davide): *"The narrative on Bitcoins as a mean of exchange is still not well known. It is mainly considered as an investment asset. It is important to accept it mainly for marketing but also to educate and promote this other side of Bitcoin".*

Interviewee (Emanuele): *"I think holding is the main advantage in this moment and also the main motivation to accept them. The euro has reached 5% inflation. Moreover, it is surely a way to increase visibility and an important marketing tool. You can use it to promote your products, such as the hamburger chain 'Shake Shack'. It can be re-used by import/export companies for commercial reasons. It might, finally, also attract new clients. However, there are no data on this final point."*

Topic 4*: Accounting*

Interviewer Q5: "*What do you think about current accounting standards? Can your firm facilitate financial registration?"*

Interviewee (Davide): *"In the Income Statement, the transaction is registered in EUR, with the value at the time of the transaction. Here, there is no issue of re-calculating the value at the end of the reporting period (31/12) given that the IS provides a continuous picture over the year. As of the BS, it is a bit more chaotic. There are many different and unclear standards"*

Interviewer: *"Therefore, can your solution facilitate Bitcoin financial registration?"*

Interviewee (Davide): *"Our software clarifies at a fiscal and accounting level, the management of the transactions in Bitcoin. It provided a clear report on the transactions created by the Bitcoin POS. One can also download this report on Excel. This is the used by the business consultant to register these revenues. The data registered are how much the payment was in EUR at the time of the transaction and how much the client paid. Moreover, there are also other important data incorporated."*

- **Interview 3**

- Personal information

Name and Surname	*Yves Longchamp*
Profession	*Manager*
Job Title	*Head of research*
Company	*Seba Bank AG*
Founded in	*2018*
Accepting Bitcoin since	*2018*
Type	*Financial Expert*

- Interview

General Questions

Interviewer: "*What does your company do and how does it link to cryptocurrencies?"*

Interviewee (Yves): "*We earned the right to custody the crypto of customers while they can manage their funds. The share should be custodied somewhere. We have a trading desk working 24/7. Imagine that you are an institution wanting to trade several millions in Bitcoin. Maybe you will buy different shares at different prices (in different moments), then you don't know the acquisition price.*
We are market makers instead; we give you a price and you buy or sell at that price. So that these institutions know the price in advance (no surprises). We also write options, which is nice since the volatility in cryptocurrencies is very high.

We also have products such as ETP (like ETF). You buy a product which replicates a share and is fully backed by the company.
We also have a basket of different currencies. You come with a budget (e.g., 1 million dollar) and we can create a portfolio of crypto, fully rebalanced with different products.
You can also get access to some information we provide from the bank (financial advisors). We say the client for instance "Bitcoin is not the moment".
This is not something traditional banks do though. They do not offer these kinds of services. It's more offered by some exchanges. These banks don't do it because they need partners as they don't have the knowledge to trade these kinds of assets. There are also anti-money laundering requirements. You need to know where the money come from. These family offices don't want to be associated with Bitcoin potentially coming from criminal activities. They don't want any potential reputational damage. But, since they buy it from the bank (swiss with a swiss banking license), we are a credible partner for them at the level of Credit Suisse. We will check where the Bitcoin comes from for them. Let's say that they come from Russia, you don't want to be linked to that. Hence, very important service. This is linked to crypto's reputation: sex, drug and rock'n'roll of finance."

Interviewer: "*How did you decide to integrate the activity of a traditional bank with cryptocurrencies?"*

Interviewee (Yves): "*Seba was created to provide crypto services. We are a crypto bank. Of course, you can also do traditional investments. We got banking license for that though. There are two banks owned by the group (Signum and Seba), they both got the license on the same day for banking but specializing on crypto. It's very important as this is the same license as traditional swiss banks but trading crypto. This the main business, not a side one."*

Interviewer: "Therefore, I imagine that you see a growing trend in the industry of cryptopayments?"

Interviewee (Yves):*" We see a huge growth in the future for that."*

Topic 1: *Motivations*

Interviewer Q1: *What do you think are the main motivations to start accepting Bitcoin as a form of payment?*

Interviewee (Yves): "*Cryptocurrency as a form of payment is okay. Is bitcoin the first one though? I don't think so. It's slower and more expensive than others. I think that, overall, there are better ones. It's more of a marketing move in my opinion, it's a pure add-on.*
For instance, there is an issue. How do you price that? Bitcoin or USD? I think USD. I am not sure how companies do it. In addition, Bitcoin is highly volatile, and you need to hedge it. Hedging is costly though. However, if you have a strong opinion that Bitcoin is the future, and it will go up. It is also a way to get cheap Bitcoin as, in the end, you are still selling your goods and services with a mark-up. You can get kind of a discount in buying Bitcoin. Building an asset for the future might be one of the main reasons for doing that. For pure payment/commercial purposes, I wonder if Bitcoin makes a lot of sense. It's not a unit of account, it's a pure add-on. Paying the supplier with that (if that is the case) might be another option. The fact of having suppliers or employees in countries where you don't trust the

government or in the bank (in the institutions). There, Bitcoin can be re-deployed by paying suppliers and employees as they would prefer it compared to the fiat currency."

Topic 2: *Commercial Benefits*

Interviewer Q2: *Therefore, so far, have you noticed any commercial advantage (increasing sales) after accepting Bitcoin or other cryptocurrencies as a form of payment?*

Interviewee (Yves): *"I think that the user experience should be improved. In the end, people are lazy. They want to use what is easy, and it works (e.g., Apple Pay, contactless payments). The user experience of traditional payment has become extremely nice. Of course, behind, it takes a lot for the money to reach the receiver and it costs a lot. So, for traditional payment the frontend is fantastic, but the backend is terrible. With crypto is the opposite, the backend is great while the frontend is terrible. We need to have wallets which facilitate the adoption for final users."*

Topic 3: *Re-deployment*

Interviewer Q3: "*What do you think is the best way to re-deploy the revenues in Bitcoin?"*

Interviewee (Yves): *"Typically, clients will write options and get some yields. It's a good way to enhance your portfolio with some kind of yields. Family offices often do that. Even though they are not familiar with Bitcoin, this way of investing is very common in the industry (facilitate adoption). You can earn more yield in Bitcoin compared to other assets though to its very high volatility."*

Topic *4: Accounting*

Interviewer Q4 & Q5: *What do you think about current accounting standards? Can your firm facilitate financial registration?*

Interviewee (Yves): *"Accounting, that you mention, is another big issue. Each country currency has a 3-letter representation (CHF, EUR, USD, etc). Some countries systems cannot deal with certain currencies that are not represented by 3 letters. This shows the difficulty to adapt the system to certain new currencies. BTC, ETH is still fine. But the system is still very much unregulated. Tax consideration, in balance sheet, the currency is different and is treated in a different way (not as cash). However, different accounting standards do not agree on how to register it. Hence, it is not clear at all how to register it."*

Topic 5: *Future trends*

Interviewer Q6: *What should be done in the future to boost adoption?*

Interviewee (Yves): "*Stable coins can be the future. You have all the stability advantage of fiat currency and all the freedom and other advantages related to cryptocurrency. I wonder, indeed, why companies have a high share of Bitcoin in treasury while Stable Coins deserve more in my opinion."*

- **Interview 4**

- Personal information

Name and Surname	*El Hadji Ndiaye*
Profession	*Entrepreneur*
Job Title	*Co-founder*
Company	*Bitcoin People*
Founded in	*2019*
Accepting Bitcoin since	*2019*
Type	*Technological and Market Expert*

- Interview

General Questions

Interviewer: *What does your company do?*

Interviewee (El Hadji): *Bitcoin People is an ecosystem leveraging Bitcoin's opportunities for business. Bitcoin is based on an open and free protocol aimed at creating a well-functioning business and creating value for companies. Still, Bitcoin's world is still neglected in this field.*

Interviewer: *How does your solution work?*

Interviewee (El Hadji): *It is a non-custodial solution. I believe that, with Bitcoin, relying on the solutions offered by the exchanges does not make much sense. They do not offer a real service; they act like financial intermediaries. 95% of them uses a model which is the same as the one employed with fiat currencies. We aim at providing a solution which allows companies to do business with the model suggested by Bitcoin's ideals.*

Interviewer: *What kind of potential do you see in this market (meaning, software provided to companies to accept payments in Bitcoin)? Do you have any data or growth rates?*

Interviewee (El Hadji): *The change has already started, but people are generally suspicious on changes like that. For this reason, the model employed by crypto exchanges offer a comfort zone, without the real change suggested by Bitcoin. However, I observe an increasing awareness on Bitcoin. Therefore, I believe there will a shift in the market from the custodial to the non-custodial solutions applied to Bitcoin's transactions. In EU, there are one million companies working on the import-export industry. They could be a potential market for us. However, one could even look at the e-commerce market, where even bigger numbers can be observed. The retail market also presents interesting opportunities. For us, everybody would need a solution like that for the future. If I have to tell you, as of now, who are the most active segments, I will say: e-commerce (representing 32% of the businesses in Europe), import-export and retail companies (with annual sales higher than EUR 50k). I think right now the market is passing the "early adopters" stage. There is a growth rate which has been computed,*

a CAGR of 11% until 2028, but I believe this is underestimated. One can think that from 2020 to 2021, the number of Bitcoin users has doubles. This can create even more cases for companies like us. Moreover, many competitors are appearing, which is a sign that the market is growing.

Topic 1: *Motivations*

Interviewer Q1: "*What do you think are the main motivations to start accepting Bitcoin as a form of payment?"*

Interviewee (El Hadji): "*I think that it could potentially attract a new share of interested clients, however I would not rely much on that. One could start accepting to adapt to the future, as it is going to be a trend due to demographic reasons. Then I would say positioning your company or brand amongst a circle of innovators, as a strategic reason. Finally, it gives you a competitive advantage in international payments, as it is a new alternative and it faster."*

Topic 2: *Commercial Benefits*

Interviewer Q2: "*Therefore, so far, have you noticed any commercial advantage (increasing sales) after accepting Bitcoin or other cryptocurrencies as a form of payment?"*

Interviewee (El Hadji): "*Maybe but I do not think is the main motivation to take Bitcoin as a payment at the current state."*

Topic 3: *Re-deployment*

Interviewer Q3: "*What do you think is the best way to re-deploy the revenues in Bitcoin?"*

Interviewee (El Hadji): *In this moment, I think holding is the best solution as the real sense would be to obtain Bitcoin without buying it. However, if the payments received are enormous, it might be more problematic and at that point, you can directly convert. If a company is larger, they also might plan with a CFO. It also depends on the weight these revenues have on the Income Statement. If the weight is relevant, volatility might be more of an issue and a company might not want to hold them as they could affect yearly revenues.*

Topic *4: Accounting*

Interviewer Q5 & Q6: *What do you think about current accounting standards? Can your firm facilitate financial registration?*

Interviewee (El Hadji): *There are no official standards in Italy, but just interpretations made by the business consultants. Our software basically provides the business consultant with data on the transactions. As of now, it is very difficult to account for Bitcoin. In the Balance Sheet, you should perform a revaluation of your assets yearly, as a snapshot. As of the Income Statement, it is just registered in the EUR amount at the time of the transaction. Moreover, in this moment, you pay taxes on capital gains, which in Italy amount to 26% of the difference between the book value and the current market price. In Germany, it is different as you can*

avoid paying taxes if you hold them for more than one year. In Switzerland, there are no taxes on capital gain for private holders.

Interviewer Q6: *What should be done in the future to boost adoption?*

Interviewee (El Hadji): *It should be treated as a currency, and not as an asset. In El Salvador, they have standardized it as a legal tender. In my opinion, this is the best solution.*

- **Interview 5**

- Personal information

Name and Surname	*Fabio Valli*
Profession	*Business owner*
Job Title	*Dentist*
Company	*Studio Valli Fabio*
Founded in	*1990*
Accepting Bitcoin since	*2021*
Type	*Company*

- Interview

Topic 1: *Motivations*

Interviewer Q1: *What do you think are the main motivations to start accepting Bitcoin as a form of payment?*

Interviewee (Fabio Valli): *"The main reason is that I am always open to innovation and to anticipate technological news. For instance, we were the first to accept credit cards in my sector. I saw that it was implemented also in Rovereto. If the waves get wider, we will be ready. Then, I see it as a potential way to broaden my client base. It also allow me to give an additional payment option to clients. For sure, I also would like my activity to be perceived as innovative and accepting Bitcoin can help to share this vision. Marketing is also another important reason. Bitcoin People, for instance, advertised us on their social pages."*

Topic 2: *Commercial Benefits*

Interviewer Q2: "*Therefore, so far, have you noticed any commercial advantage (increasing sales) after accepting Bitcoin or other cryptocurrencies as a form of payment?"*

Interviewee (Fabio Valli): *"I saw no commercial results so far. For now, the patients do not want to spend them. I received only one payment in Bitcoin. I think that it would be faster and more comfortable as a payment method. However, there is not the right mentality yet."*

Topic 3: *Re-deployment*

Interviewer Q3: "*What do you think is the best way to re-deploy the revenues in Bitcoin?"*

Interviewee (Fabio Valli): *"It depends. If I need liquidity, I will directly convert them. Otherwise, I would hold. However, those are premature questions for me as I only received the equivalent of €50 in Bitcoin."*

- **Interview 6**

- Personal information

Name and Surname	*Dario Micheletti*
Profession	*Business owner*
Job Title	*Cafè owner*
Company	*Caffè Danesi – Gelateria artigianale*
Founded in	*1998*
Accepting Bitcoin since	*2019*
Type	*Company*

- Interview

General Questions

Interviewer: "*What does your company do?"*

Interviewee (Dario): *"I have two cafes. One is open more during the day in a road which is between Brescia (my town) and another place. The other one is in the famous 'Franciacorta' area in Lombardy. Moreover, I have a restaurant in Thailand."*

Interviewer: "*How did you decide to accept Bitcoin as a form of payment?"*

Interviewee (Dario): *"I have met the guys from Bitcoin People on Facebook and I observed their solution gave the option to pay in crypto and receive fiat currency. Then, after a meeting with them, I bought their solution as I discovered they could also implement a non-custodial solution as I told them that my idea was just to accept Bitcoin. Then, it became reality a couple of months later. My request led them to create the non-custodial software called Bpay."*

Topic 1: *Motivations*

Interviewer Q1: "*What do you think are the main motivations to start accepting Bitcoin as a form of payment?"*

Interviewee (Dario): *"The main reason for me is that I do not believe in the traditional economic system anymore. Especially in Italy, there is a very high fiscal pressure not allowing entrepreneurs to make profit. I also believe in Bitcoin a lot, especially looking at the growth this asset showed over the years. Lower fiscal pressure in having Bitcoin on your Balance Sheet is another reason. Moreover, having a restaurant in Thailand, I find Bitcoin very useful for international transactions."*

Topic 2: *Commercial Benefits*

Interviewer Q2: "*Therefore, so far, have you noticed any commercial advantage (increasing sales) after accepting Bitcoin or other cryptocurrencies as a form of payment?"*

Interviewee (Dario*): "From the awareness viewpoint, Italy is still at an early stage in my opinion. A lot of people are curious and get to me asking questions such as 'What is it?' or 'How is it done?'. I think it will take some time. I wanted to be among the first ones because I strongly believe in Bitcoin. I feel like an 'early adopter'. I noticed that people between 15 and 18 years old know Bitcoin. It is not as true for the people between 20 and 30 years old. Here, I notice a gap because a more complete knowledge is present between 30 and 40 years old people. I started to accept it in 2019 and nobody came. Then, when the price increased, a lot of people got interested. Now, it is down again. We still need some time."*

Interviewer: "Do you think you got more results in terms of visibility instead?"

Interviewee (Dario): *"The idea was to create a sort of 'Bitcoin Village' where we offer consulting and education to people who want to approach the world of cryptocurrencies. I organized some events with specialized companies such as Bitcoin People, generating considerable interest. Externally, some local newspaper articles were written on my cafè."*

Topic 3: *Re-deployment*

Interviewer Q3: "*What do you think is the best way to re-deploy the revenues in Bitcoin?"*

Interviewee (Dario): *"The idea would be to hold and, once the price boosts, being able to re-invest them on my activity. For instance, buying property or inventory. Now my plan is to accumulate while maybe tomorrow I will be able to pay employees or to re-use them to manage my activity."*

Topic 4: Accounting

Interviewer Q4 & Q5: "*What do you think about current accounting standards? Can your firm facilitate financial registration?"*

Interviewee (Dario): *"Once I have completed a transaction, I register them. Then, there could be a new registration at the end of the year either increasing or decreasing the value. If Bitcoin is not translated in EUR, you would need to be monitored at a fiscal level from the national agency (Agenzia delle Entrate). However, on Bitcoin there are still no taxes to be paid, unlike other assets such as stocks. In Italy, they are still not classified, they do not know what it is. For this, it cannot be taxes yet. One only needs to pay when it is traded with a capital gain. However, there are some legislations, such as Malta and the UAE, allowing residents not to pay taxes on capital gain. I think that holding Bitcoin is a good way to be repaired against inflation."*

Interviewer: *"Do you do it yourself or is it managed by someone else?"*

Interviewee (Dario): *"We have a business consultant doing it for us. This person studied the topic and understood how to register them. I know that Bitcoin People is also organizing some trainings on fiscality for companies, but I could not look at them yet."*

Topic 5: *Future trends*

Interviewer Q8: *"What do you think about future trends concerning payments in Bitcoin?"*

Interviewee (Dario): *"I believe Bitcoin has a very bright future and its price will raise without being correlated to the major indexes such as NASDAQ and S&P500. I see Bitcoin as a child who needs to understand the world in which he is living in. I am afraid that regulating it a lot will affect financial performances, rendering it more standard with maximum 3-4% annual increase. Surely, there will be more scarcity in the future for miners as there is a limited supply of 21 million coins."*

Interviewer Q9: *"What do you think about stable coins?"*

Interviewee (Dario): *"I think they are a fundamental part of the cryptocurrency market. They provide security in a moment in which there is a lot of fear in the market. My idea is still to accumulate Bitcoin. I see stable coins more as a way to hedge against the volatility which is present in the crypto market. They can be seen as the fuel of the market."*

Interviewer Question 10&11: "*Did you receive any criticisms due to the criminal links or the energy consumption? What do you think about them?"*

Interviewee (Dario): *"There are still a lot of people who do not know anything about this market. Moreover, I think traditional financial institutions are going against it. I like the fact that finance can be more democratic thanks to this instrument, allowing people living in less developed economies to acquire even smaller parts of Bitcoin, such as 1 satoshi. In Kenya, for instance, there was a high circulation of cryptocurrencies due to the fact that people do not trust the traditional financial channels. However, criticisms will always be present until Bitcoin differentiate itself from traditional financial assets."*

- **Interview 7**

- Personal information

Name and Surname	*Gianpaolo Rossi*
Profession	*Business owner*
Job Title	Cafè owner
Company	*Bar Mani Al Cielo*
Founded in	*2014*
Accepting Bitcoin since	*2015*
Type	*Company*

- Interview

Topic 1: Motivations

Interviewer Q1: *"What do you think are the main motivations to start accepting Bitcoin as a form of payment?"*

Interviewee (Gianpaolo): *"I have always been interested in economics and technology. I particularly got interested on that when I heard about scarcity (21 million cap), the irreversibility of payments and eliminating third parties. I am generally interested on the technology behind Bitcoin."*

Topic 2: Commercial Benefits

Interviewer Q2: *"Therefore, so far, have you noticed any commercial advantage (increasing sales) after accepting Bitcoin or other cryptocurrencies as a form of payment?"*

Interviewee (Gianpaolo): *"The category of clients which are generally more interested are: middle-age man who is interested in technology, with a strong gaming background. This profile could see the evolution of the technology, and youngsters who are more interested in trading the asset to make a profit. However, I have to say that the technology is not user friendly. For example, having a private wallet (not one on Binance or Coinbase) would be necessary to properly store value. The people who really understand Bitcoin still see it as a store of value. Therefore, they do not spend it."*

Interviewer Miscellaneous*: "Starting to accept it so early (in 2015), did you notice any results in terms of visibility?"*

Interviewee (Gianpaolo): *"Yes, it was a high value added. I would not expect such a return in terms of media attention. I was the object of many newspaper articles. Moreover, important TV programs came here to interview me. An example are "Le Iene", Studio Aperto" or "Rai". Social media posts were also made. All this happened between 2017 and 2018, when there was the first 'Bitcoin boom'. However, I think we are still on an early phase. Another source of attention was when I put a Bitcoin ATM in my café."*

Interviewer Miscellaneous: *"Tell me more about the ATM"*

Interviewee (Gianpaolo): *"I initially installed but then I had to remove it. It was there to promote Bitcoin, for whom wanted to try with modest amount of money. Then, however, people with more than 1k were starting to come and the recent anti-money-laundering laws could have posed a problem for my activity. Basically, people came and deposit money, while I created a dedicated wallet for that. At the beginning, I did not put any cap on the amount that could be deposited. Then, I capped it at €500. However, I did not gain any money for that, it was just there to promote Bitcoin to the local community. I basically created a bank account specifically for this activity to store the money that were deposited on the ATM. I installed the ATM in 2017, then the money laundering laws were announced in October 2018. Therefore, I decided to stop this activity."*

Topic 3: Re-deployment

Interviewer Q3: *"What do you think is the best way to re-deploy the revenues in Bitcoin?"*

Interviewee (Gianpaolo): *"I have never converted anything. However, I have tried to re-use it within the real economy. I managed to convince a couple of suppliers to accept them. one, for instance, was a beer shop and another was a prosecco firm based in the region of Veneto. Moreover, I tried to convince my employees to get part of their salaries in Bitcoin. At the beginning, they were not so enthusiastic on the idea. Then, they were convinced to try. For this in particular, I used the solution offered by 'Bitwage', where one can pay salaries in Bitcoin. Basically, one needs to send them an e-mail with the names of the employees. One should give them the amount and the BTC address where to send the coins. After sending them money via regular bank transfer, Bitwage will manage the billing process. However, there were some problems with volatility. For example, the bank transfer can take 3 days to be processed and, in the meanwhile, the value can go down and the employees are paid less. It is beneficial in less stable economies, such as Colombia or Venezuela."*

Topic 4: Accounting

Interviewer Q4: *"How do you manage accounting?"*

Interviewee (Gianpaolo): *"It does not change anything. In the end, the receipt will always be in EUR. Hence, paying in BTC or potatoes does not make a difference. Then, for my activity, I also employ a simplified financial registration. In the end, the payment must be accepted by me. Then, taxes will always be paid in EUR. I just declare BTC transactions in the 'RV' module (the one used for transactions in foreign currency) and this is that."*

Interviewer Q6: *"What should be done to boost adoption?"*

Interviewee (Gianpaolo): *"Apart from El Salvador, there are still not many nations which are Bitcoin-friendly. Recently, Lugano joined this team. In the US, there are a lot of ATMs, meaning it is definitely a more advanced environment. I think that in general the fact that they are not forbidden in the US or in the EU is already a good sign. I do not think they will want to complicate things. They will not regulate it and they will not forbid it."*

Topic 5: Future trends

Interviewer Q8: *"What do you think about future trends concerning payments in Bitcoin?"*

Interviewee (Gianpaolo): *"The future will probably be dominated by crypto exchanges since people are generally lazy. It is simpler and more user friendly and it constitutes a simpler way to enter this payment circle. However, it just replicated the prices of Bitcoin. In the end, you enter in fiat currency and exit the same way."*

Interviewer Q9: *"What do you think about stable coins?"*

Interviewee (Gianpaolo): *"I think they are interesting for traders or to play on crypto exchanges. In the end, they are pegged to the prices of fiat currencies. Therefore, they do not constitute a good way to store value."*

Interviewer Q10 and Q11: *"Did you receive any criticisms due to the criminal links or the energy consumption? What do you think about them?"*

Interviewee (Gianpaolo): *"I think these criticisms come because of poor knowledge. I think it will take time for many to understand Bitcoin fully."*

- **Interview 8**

- Personal information

Name and Surname	*Giuliano Cipriani*
Profession	*Business owner*
Job Title	*Restaurant owner*
Company	*Ristorante Il Doge*
Founded in	*2012*
Accepting Bitcoin since	*2019*
Type	*Company*

- Interview

Topic 1: Motivations

Interviewer Q1: *"What do you think are the main motivations to start accepting Bitcoin as a form of payment?"*

Interviewee (Giuliano): *"First, the opportunity to attract a new stream of clients. There is indeed a share of people which is particularly interested on that. However, still few payments were made. Then, providing the client with an additional payment method. I also think it is always good to be in an innovative circle. It provides you with a stimulus to always look for something new."*

Topic 2: Commercial Benefits

Interviewer Q2: *"Therefore, so far, have you noticed any commercial advantage (increasing sales) after accepting Bitcoin or other cryptocurrencies as a form of payment?"*

Interviewee (Giuliano): *"There are some interested people. However, I would say that in the end the additional clients were just 1-2 per month."*

Topic 3: Re-deployment

Interviewer Q3: *"What do you think is the best way to re-deploy the revenues in Bitcoin?"*

Interviewee (Giuliano): *"We convert it generally in EUR. We decided to apply this policy. However, a minor share is held. We will see whether to change this policy or not in the future depending on how the market evolves"*

Topic 4: Accounting

Interviewer Q4: *"How do you manage accounting?"*

Interviewee (Giuliano): *"I honestly do not know. I do not manage this part."*

- **Interview 9**

- Personal information

Name and Surname	*Fabio De Gasperi*
Profession	*Business owner*
Job Title	*Clothing shop owner*
Company	*100-one Freeride Shop*
Founded in	*2002*
Accepting Bitcoin since	*2015-2016*
Type	*Company*

- Interview

General Questions

Interviewer: *What does your company do?*

Interviewee (Fabio De Gasperi): *"We sell skateboards/snowboard and streetwear. We try and differentiate to be active in both winter and summer seasons."*

Topic 1: *Motivations*

Interviewer Q1: "*What do you think are the main motivations to start accepting Bitcoin as a form of payment?*

Interviewee (Fabio De Gasperi): *"I would say it constitute a payment alternative for the client, a way to differentiate us from competition and a value added for the online commerce. Moreover, one can always hope for a capital again on the asset sale."*

Topic 2: *Commercial Benefits*

Interviewer Q2: "*Therefore, so far, have you noticed any commercial advantage (increasing sales) after accepting Bitcoin or other cryptocurrencies as a form of payment?"*

Interviewee (Fabio De Gasperi): *"If I was in any place other than Rovereto, I would not have had the same success. In Rovereto, there was already a culture in which people knew what they were talking about. However, the clients paying in Bitcoin during these 7 years are always the*

same. I would say I received 30-40 transactions during this period but always from the same people."

Topic 3: *Re-deployment*

Interviewer Q3: "*What do you think is the best way to re-deploy the revenues in Bitcoin?"*

Interviewee (Fabio De Gasperi*): "We have always converted them in EUR to re-invest them in the company. I would say almost 100% of the revenues. In the end, we acquired new customers or increased the average spending of the existing customer base."*

Topic *4: Accounting*

Interview Q4: "How do you manage accounting?"

Interviewee (Fabio De Gasperi): *"If one person enters and pays in Bitcoin, it does not change anything since at the end of the month, all the sales in Bitcoin are registered in EUR and not affect us financially as we directly convert them in EUR."*

Interviewer Q6: *What should be done in the future to boost adoption?*

Interviewee (Fabio De Gasperi): *"If we want Bitcoin to be widely used as a currency, one should incentivize the expense for that. Now, it is still seen as an investment asset."*

Topic 5: *Future trends*

Interviewer Q9: *"What do you think about stable coins?"*

Interviewee (Fabio De Gasperi): "*I would like a higher employment for them since they would be useful to advertise digital currencies. They would be a great help in switching from an obsolete system dominated by banks to a more democratic finance."*

- **Interview 10**

- Personal information

Name and Surname	*Alessio Salvetti*
Profession	*Manager*
Job Title	*Director*
Company	*Bcademy*
Founded in	*2020*
Accepting Bitcoin since	*2020*
Type	*Company*

- Interview

General Questions

Interviewer: *What does your company do?*

Interviewee (Alessio): *"We offer software solutions for companies who want to enter the Bitcoin/Blockchain world. We also offer consulting and training services. For example, we can help a company to start accepting Bitcoin or to create their own token. These organizations contact us to understand how to implement these solutions in a tailored manner for their business. We also help them on the legal and technological side. As of now, we are opening to financial services related to this technology. We also accept payments in Bitcoin via our own software (Bpos). We are one of the first companies in the world which was built exclusively in Bitcoin, by nominating as constituting capital. We are currently working a lot in Switzerland, Italy and UAE. In UK we are still trying and developing the business from scratch."*

Topic 1: *Motivations*

Interviewer Q1: "*What do you think are the main motivations to start accepting Bitcoin as a form of payment?"*

Interviewee (Alessio): *"I would say mainly marketing, meaning that it constitutes free advertising for the company. Then, broadening the customer base is also possible and convenient as crypto holders are generally high spending. This depends on where the business is located and on the activity type. Hedging against inflation is another possible reason. Finally, I see the opportunity to accumulate Bitcoin without paying fees as a final motivation. I see many industries which would benefit from that, especially fashion e-commerce companies and online businesses in general."*

Topic 3: *Re-deployment*

Interviewer Q3: "*What do you think is the best way to re-deploy the revenues in Bitcoin?"*

Interviewee (Alessio): *"Most of is held. I would say that who has a revenue share in Bitcoin lower than 5% will hold them. If the share is higher, a specific strategy is needed. Companies having a CFO generally know how to do it. We are currently trying to launch an incubator here in London based on trading algorithms trying to optimize Bitcoin volatility. On futures, one could earn 3-4% a month basically risk-free. An investor, now, has a lot of options concerning financial instruments. I would say banks will start to offer a lot of services regarding this world."*

Topic 4: Accounting

Interviewer Q4: "How do you manage accounting?"

Interviewee (Alessio): *"One can easily manage it as an ordinary revenue. The receipt is made denominated in the fiat value at the time of the transaction. Also, Bpos (our solution) works like that. When they are sold, some issues may arise. Both in Italy and UK, one needs to pay taxes on capital gain. In Dubai, no taxes on capital gain need to be paid. In Switzerland, again, is different. This creates a bit of chaos. Concerning the Balance Sheet, the registration is performed in the correspondent value*

in EUR on the 31/12. However, the measurement can be freely made. For instance, I compute the average value of the previous 100 days. I think it is generally registered as an intangible. However, I am not sure as this is managed by the business consultant."

Interviewer Q6: "What should be done to boost adoption?"

Interviewee (Alessio): *"In my opinion, it should be considered as an asset (as it was gold). In Italy they treat as foreign currency, which conceptually is not wrong in my opinion. As, for instance, in Switzerland and El Salvador is legal tender."*

Topic 5: *Future trends*

Interviewer Q9: *"What do you think about stable coins?"*

Interviewee (Alessio): *"I think they are good for the industry to reach a mass adoption of Bitcoin. Among them, I only consider Tether, which I think has done a lot for Bitcoin. In general, they render the transfer easier. I think they are in a transition phase as nations do not wish a wider usage of a currency which is competing with the national one."*

Interviewer Q10 & Q11: "*Did you receive any criticisms due to the criminal links or the energy consumption? What do you think about them?"*

Interviewee (Alessio): *"A recent study published by the bank of England (should be AML 2016-2017) showed that only 0.3% of laundering crimes was committed on public blockchain while 75% of it within the traditional banking system. It is indeed easier to launder on the banking system rather than on a public ledger. About the sustainability criticism, I believe Bitcoin will move towards renewable energies, bringing innovation also on that side."*

- **Interview 11**

- Personal information

Name and Surname	*Andrè Meier*
Profession	*Manager*
Job Title	*Managing Director*
Company	*The Dolder Grand*
Founded in	*1899*
Accepting Bitcoin since	*2019*
Type	*Company*

- Interview

General Questions

Interviewer: "*How does your company relate to cryptocurrencies?"*

Interviewee (Andrè): "*Like any other company, the Dolder Hotel AG has been dealing with the topic of digitalization for a long time. In the spirit of continuous improvement, applications for*

the hotel industry that either add value for the guest or simplify business processes are regularly tested. In the process, blockchain and its far-reaching possibilities also became a topic. In several discussions with representatives of Crypto Valley Zug, various interesting possibilities were pointed out, but all of them had in common that there were no tested applications yet. Only the feasibility in payment for services offered the prospect of success in the short to medium term. Bitcoins have been accepted as an additional means of payment at the Dolder Grand since May 2019 (and Ethereum since mid-2021). Unlike other hotels in Switzerland, however, not only for advance payments or non-refundable offers, but also for on-site payment of hotel accommodation, consumption in the restaurants or stays and treatments in the spa. For this purpose, all points of sale were equipped with a corresponding reader for the collection of Bitcoins."

Interviewer: *"How do you accept BTC payments? What kind of solutions/software do you employ for that?"*

Interviewee (Andrè): "*Our solution is called INAPAY. It is installed on an IPod per point of sale and generates a QR code about the transaction amount. The app can be downloaded via the app store."*

Topic 1: *Motivations*

Interviewer Q1:" *What do you think are the main motivations to start accepting Bitcoin as a form of payment?"*

Interviewee (Andrè): *"Our shareholders strongly believe in cryptocurrency. They were actively looking for use cases in the real economy. It was just a nerdy thing at the beginning. First discussion was end of 2017. Since May 2019, we are accepting cryptocurrencies. We started off with Bitcoin and have, since august 2021, we accept Bitcoin cash, ether and Litecoin. We installed a crypto ATM in the hotel since October 2020, having 300 transactions. However, I believe acceptance is still predominantly a PR tool."*
Interviewer Miscellaneous: *"Can we talk a bit more about ATM? What was your experience with this tool?"*

Interviewee (Andrè): *"Once cryptocurrencies were rising in value, then a lot of buying takes place. As soon as they drop in value, it stops. At the beginning it was just 50 CHF and it increased in value. It was mainly PR tool for us, trying to attract the crypto nerds. At least with the ATM they have the chance to change the crypto into fiat currency."*

Topic 2: *Commercial Benefits*

Interviewer Q2: "*Therefore, so far, have you noticed any commercial advantage (increasing sales) after accepting Bitcoin or other cryptocurrencies as a form of payment?"*

Interviewee (Andrè): *"At the moment, the PR effect and the resulting turnover clearly exceed the Bitcoin volume. Nevertheless, we are convinced that the acceptance of the cryptocurrency will open up an additional customer segment for the Dolder Grand. To give an example, there was a pitching for a small convention in Zurich, that meant that people entered because they could pay their expenses in crypto. That's not a huge profile to increase revenue, small bits,*

increasing value, can raise your revenue in the future. Moreover, if we want to modern, we have to be consistent and accept this tool. Also we host some tech events. For nerds, crypto is not money to spend but a toy to play with. They did not even have the QR code at the beginning. First, we need to get the nerds to see it as a payment tool. On the other hand, you have the fancy guys thinking about making a fortune in one night. They were also spending before though. For us in the beginning of 2019, it was a big PR hype. We had press releases. It's getting more and more common now. Once the big credit card acquirers to pay by crypto, it flattens out. Nowadays a lot of companies do that."

Topic 3: *Re-deployment*

Interviewer Q3: "*What do you think is the best way to re-deploy the revenues in Bitcoin?"*

Interviewee (Andrè): *"Due to the high volatility of cryptocurrencies, each transaction must be immediately converted into Swiss francs. We do not have financial assets in general. We need to pay our expenses and all the goods we have. I do not want to take risks. Once the volatility declines, this policy might change."*

Topic 4: Accounting

Interviewer Q4: "*What do you think about current accounting standards?"*

Interviewee (Andrè): *"As mentioned above, we do not keep cryptocurrencies on the balance sheet."*

Topic 5: Future trends

Interviewer Q6: "*What should be done in the future to boost adoption?"*

Interviewee (Andrè): *"We already thought about tokenisation of rooms. We have been thinking about NFTs. We could tokenise our art pieces. Overall, let the others try and we can enter."*

Inteviewer Q9:" What do you think about stable coins? Did you consider them?"

Interviewee (Andrè): *"I do not see the advantage."*

- **Interview 12**

- Personal information

Name and Surname	*Bruna Carbalho*
Profession	*Business owner*
Job Title	*B&B owner*
Company	*La Gualda Vecchia*
Founded in	*2021*
Accepting Bitcoin since	*2022*
Type	*Company*

- Interview

General Questions

Interviewer: "*What does your company do?"*

Interviewee (Bruna): *"It is a B&B. We also want to introduce another side of event planning using the outdoor space. We are currently building an 'emotional garden' space."*

Topic 1: *Motivations*

Interviewer Q1: "*What do you think are the main motivations to start accepting Bitcoin as a form of payment?"*

Interviewee (Bruna): *"Promoting Bitcoin on a large scale, taking a clear position according to my beliefs and providing clients with an additional payment option are the main reasons for me."*

Topic 2: *Commercial Benefits*

Interviewer Q2: "*Therefore, so far, have you noticed any commercial advantage (increasing sales) after accepting Bitcoin or other cryptocurrencies as a form of payment?"*

Interviewee (Bruna): *"It is still on an initial phase. I did not activate knowing that there is demand but I think that in the future there will be."*

Topic 3: *Re-deployment*

Interviewer Q3: "*What do you think is the best way to re-deploy the revenues in Bitcoin?"*

Interviewee (Bruna): *"Holding 100% of this revenue is my plan as I believe it will constitute a minimum share of the overall sales. If this was more, I would convert as I need to pay business expenses. As of directly paying suppliers with them, I think education is lacking in this moment as many still consider them as a scam."*

Topic 4: Accounting

Interviewer Q4: *"How do you manage accounting?"*

Interviewee (Bruna): *"Everything is managed by the business consultant. To help him, I subscribed to the pro version of Bpay, offered by Bitcoin People."*

Topic 5: Future trends

Interviewer Q10 & Q11: *"Did you receive any criticisms due to the criminal links or the energy consumption? What do you think about them?"*

Interviewee (Bruna): *"With Bitcoin People, we want to organize some live online discussions to explain better our views on this aspect. Some people do pose these questions, although I would say the major criticism is constituted by the high volatility."*

- **Interview 13**

- Personal information

Name and Surname	*Robert Bregy*
Profession	*Municipality Counselor*
Job Title	*Lugano Municipality Counselor*
Accepting Bitcoin since	*2022*
Type	*Company (institution accepting Bitcoin)*

- Interview

General questions

Interviewer: "When did you start getting involved with cryptocurrencies as municipality of the city of Lugano?"

Interviewee (Robert): *"We come from an experience with the app 'MyLugano' for 1 year and a half, made for token payments. We thought this could constitute a good instrument to promote a wider adoption of Bitcoin and other cryptocurrencies."*

Interviewer: *"Tell me more about 'MyLugano'."*

Interviewee (Robert): *"We introduced it as a tool to manage the access of people to the various public services (e.g., public swimming pool) within the pandemic context. We launched it in 2020. It was then extended by introducing a token pegged to the Swiss Franc. Every time a user spends on the services linked to the city or on some affiliated activities, they receive a 10% cash back. By doing so, we manage to stimulate the economy by holding expenses within the local territory. This initiative was welcomed favorably by local merchants. For instance, some of them started to pay bonuses via this token payment (LVGA coin). During this year and a half, we managed to stimulate circulation of half million francs throughout the local wallets. As of now, we count 6 million users with an active wallet and 150 shops accepting this token as a payment."*

Topic 1: *Motivations*

Interviewer Q1: "*What do you think are the main motivations to start accepting Bitcoin as a form of payment and, in your specific case, to start engaging with cryptocurrencies?"*

Interviewee (Robert): *"It is a path we started towards blockchain technology. As I told you, we started with this payment token approved by Swiss regulators with a 'proof of authority'. We then created a public blockchain infrastructure. Now, we launched the 'Plan B', starting a collaboration with Tether. Our main goal is to attract investment from companies or start-ups by creating an innovation hub/ecosystem. Moreover, we want to promote education on this side, especially technical one as companies let us understand that they have troubles finding specialized people. Therefore, financing education as well as providing scholarships become fundamental. The final aim is to create a physical hub for start-ups and to promote projects which can have an impact on the territory."*

Topic 2: *Commercial Benefits*

Interviewer: "*You already mentioned the commercial results. How about visibility?"*

Interviewee (Robert): *"We were literally assaulted by the requests after the first webinar. Switzerland finds itself in a particular context which can be deemed as crypto-friendly. Moreover, this initiative surely helps to further attract the crypto community. Finally, an important partner such as Tether helps in gaining liquidity as it represents the main stable coin."*

Topic 4: Accounting

Interviewer Q5 & Q6: "*What do you think about current accounting standards? Can your firm facilitate financial registration?"*

Interviewee (Robert): *"I believe that, in this phase, this does not constitute an issue. As of today, we already have many commercial activities who accept cryptocurrencies. These 'early adopters' are generally smarter and they will figure out how to manage this side. The new ones tend to directly convert the payments in fiat currency and, therefore, they manage the accounting as they have always done. At this point, I do not see any difference with card payments."*

Topic 5: Future Trends

Interviewer Q8: *"What do you think about future trends concerning payments in Bitcoin?"*

Interviewee (Robert): *"I am strongly convinced that those who made a first step towards stable coins, which are safer, will eventually move towards Bitcoin. It is natural to go step-by-step. Stable coins represent a comfort zone and we looked at them as a way to get people closer to*

cryptocurrencies. We currently look at Bitcoin, Tether and Lvga coin as legal tenders and we want to incentivize people to pay taxes with these 3 currencies."

Interviewer Q10 & Q11: *"Did you receive any criticisms due to the criminal links or the energy consumption? What do you think about them?"*

Interviewee (Robert): *"We received both positive and negative feedbacks, mainly coming from more traditional environments. The criticisms are always the same, linked to environmental impact and criminal activities. Our answer to the former is that the impact is the price to be paid for this kind of technology. I would see it as a security cost. Moreover, we know mining is moving towards more renewable energies. Moreover, the scalability and consumption of Bitcoin are innovating. One should compare consumption of Bitcoin vs some other industries such as dryers or gaming industries. To the second, I can say that the majority of laundering crimes is performed with USD rather than BTC."*

- **Interview 14**

- Personal information

Name	*Denis Scheller*
Profession	*Manager*
Job Title	*Managing Director*
Company	*Bitcoin Suisse*
Founded in	*2014*
Accepting Bitcoin since	*2017*
Type	*Company*

- Interview

General Question

Interviewer: "*How does your company relate to cryptocurrencies?"*

Interviewee (Denis): *Bitcoin Suisse offer solutions for buying and selling cryptocurrencies. Moreover, we offer ways to store these cryptocurrencies. On the payment side, we build the infrastructure to accept cryptocurrencies. We offer 3 main solutions on that: payment in the point of sale, E-commerce, invoice solution (mainly B2B). We are currently working with three cryptocurrencies for payment: Bitcoin, Bitcoin Lightning (solving the problem of big transactions on Bitcoin payments) and Ethereum."*

Interviewer*: "How does the product work?"*

Interviewee (Denis): *"We provide you with a QR code containing three information i) the blockchain ii) the amount iii) the timeline (how long this price is valid for). As a merchant, you are not in contact with crypto. We, at bitcoin Suisse, cover this risk for you. The merchants will directly receive fiat currencies. For us, this is a way for them to offer an alternative payment system. We do not offer a non-custodial solution to directly transfer the BTC to the merchant yet. But we have it in the pipeline as some clients are asking for it. For the moment, we keep the cryptocurrencies, and we directly convert the amount in the fiat currency. This is the more*

requested by clients as in the end they need to pay the bills and the Bitcoin is not so widespread in the economy to allow them to do so. It's less risky for them."

Interviewer*: "Interesting. What about your clientele, that you just mentioned?"*

Interviewee (Denis): "*We have a lot of clients related to luxury industries."*

Topic 1: *Motivations*

Interviewer Q1: "*What do you think are the main motivations to start accepting Bitcoin as a form of payment?"*

Interviewee (Denis): "*Mostly offering an alternative payment to clients. Moreover, it can come from explicit customers' request. For instance, a Ferrari dealer can receive requests from clients who want to pay in crypto. The marketing aspect is also important. Think about Kodak and how the perception changed after taking this decision."*

Topic 2: *Commercial Benefits*

Interviewer Q2: "*Therefore, so far, have you noticed any commercial advantage (increasing sales) after accepting Bitcoin or other cryptocurrencies as a form of payment?"*

Interviewee (Denis): "*Commercial results are more related to the lower commission costs resulting in an increase in topline. However, not higher demand (more clients) arising from accepting Bitcoin. I believe we are still building proper payment infrastructure and Bitcoin still has to mature from an investment asset to a currency."*

Topic 3: *Re-deployment*

Interviewer Q3: "*What do you think is the best way to re-deploy the revenues in Bitcoin?"*

Interviewee (Denis): "*If people want to hold, they will hold. Sometimes people receive ETH because customers decide they want to pay with it and then they want to hold it in BTC because they think it might better for their Balance Sheet."*

Topic 4: Accounting

Interviewer Q4: "*What do you think about current accounting standards?"*

Interviewee (Denis): *"I am not an expert on that. Unfortunately, I cannot answer"*.

Topic 5: Future trends

Interviewer Q8: "*What do you think about future trends concerning payments in Bitcoin?"*

Interviewee (Denis): *"You need to create awareness and access. About future growth, look at chain analytics. Big growth in 5 years and then the slope will be flatter. About us, we continue to grow over the years, without sharing specific numbers. By 2040, we aim at having 50% of crypto rails globally. Particularly lightning network is the future of payment, solving many*

problems in Bitcoin. The regulatory environment of crypto is very complex and fragmented. Different countries have different regulations. MICA regulation on different crypto assets is currently on negotiation, to become effective in 2024 and 2025. Regulation is a big problem on widening the crypto payment network. Empty money laundering checks are also performed by us. There are currently 300,000,000 crypto users out there. The growth rate is huge, but we are still at an early adopter phase. This payment rail will eventually go to mass adoption in the future."

Interviewer Miscellaneous: *"Do you think it will play a more important role in developing economies rather then in the developed ones?"*

Interviewee (Denis): "*You have tremendous differences in adoption indeed, so yes. If you think about Lebanon, turkey, with tremendous inflation rates. There is a correlation between instable local currencies, inflation rate and adoption of cryptocurrencies. Also, being Bitcoin an inclusive way of paying (banking the unbanked), has a higher effect on countries with a high percentage of unbanked population. Central and Western Europeans live in a wealth bubble, we are not used to unstable currencies. For us, Bitcoin is for now just a way to increase value of money, a growing asset to invest in."*

Interviewer Q9: *"What do you think about stable coins?"*

Interviewee (Denis): *"They have a lot of potential. Tether is the biggest one, pegged to USD. You can have the benefits of the blockchain but with the stability and easy denomination in USD (80% of world trade volume is settled in USD)."*

Interviewer Q10: "*Did you receive any criticisms due to the criminal links or the energy consumption?"*

Interviewee (Denis): "*The ESG is a very important topic. In case of important companies, they also have an ESG board. We almost always focus on E, but S & G receive an important advantage with Bitcoin on being more inclusive and decentralized, based on precise rules. On environment, an honest discussion is deserved. There are some things to be improve. There is overall a perception that Bitcoin is energy consuming and ESG board are an important barrier for Bitcoin acceptance. However, I think that energy can be cleaner in the future"*

- **Interview 15**

- Personal information

Name	*Jason Freeman*
Profession	*Trader*
Job Title	*Investment Banker*
Company	*Family Office*
Type	*Financial Expert*

- Interview

Volatility

Interviewer: *"What do you think about Bitcoin volatility? What are the main instruments to be protected?"*

Interviewee (Jason): *"BTC volatility index in Bloomberg registers a variance of 77.99, based on tradable option prices while VIX is 24.24. Bitcoin is indeed super volatile unlike gold or other assets. Hence, if you are a blue-chip company and you have 10% of your BS in Bitcoin, this can affect your rating because you're going to be more volatile, constituting an impairment for publicly traded companies to start accepting cryptocurrencies.*
About instruments, one can buy a 3-month option where the implied volatility is 10%. Then, if volatility collapses (being, for instance, 5%) one is less likely to gain. The option market is the predictor of future volatility for an asset. That is why you have an implied volatility concept. If you own an asset, a stock for example, there are a lot of option strategies. Say, I earned a lot of Bitcoin. There will be 3-month call option which gives you the right to buy Bitcoin at 70k, because I believe the value will go even higher than that (let's say at t0 is 40k). Even if Bitcoin in 3-month does not ever reach that level, you can still sell the option which will still be worth a lot (let's say 4k) because of the high volatility of the asset they're trying to hedge."

Interviewer: *"What do you think about the argument commenting on high inflation rates of fiat currencies?"*

Interviewee (Jason): *"Normally when there is a crisis in the world goes higher because it's perceived to be a safe asset. The dollar has lost a lot in the last months. There is a relationship with fiat currencies called 'Interest Rate Parity'. Basically, it states that if interest rates are higher in one country than another, it will be more attractive to store money in that country rather than the other. In theory, the currency of the country will appreciate. Interest rates are projected to raise dramatically in the US. That is why dollar appreciated so much. If you observe the BTC/USD index in the last 6 months, it probably went down. If you compare it with EUR, it went down less probably. Usually, one compare BTC with USD, however it can also be compared with gold or S&P500. However, I would say it is common practice to compare it to the USD as it is considered as a commodity. In some way, BTC aims at challenging the USD dominance. However, generally, inflation rates are different depending on the country but they are not comparable to the swings of Bitcoin. If you look at the all time high which was, let's say, 6 months ago, Bitcoin has lost more value than any other asset. In the meanwhile, gold and dollar have gone up. Hence, the argument you mention could be valid, maybe, more in the long run."*

Interviewer: *"In your opinion, what causes this high volatility?"*

Interviewee (Jason): *"First, fiat currencies are protected by central banks. Moreover, BTC is not a unit of measure, while it is just a small percentage who have access to it. One could argue that volatility would be lower if more people had access. Taking USD, for instance, all companies in the world hold it, more or less. Hence, it can be assumed that mass adoption would stop these wild swings. However, for this to happen, one should really know the value of this asset. In the end, if 30 minutes after a transaction the value changes by a lot, it becomes harder to employ that for commercial purposes."*

Topic 5: Future trends

Interviewer Q9: *"What do you think about stable coins?"*

Interviewee (Jason): *"It is something to be deemed but still small. Institutions now really look at Bitcoin and Ethereum. Overall, the governments want to control their own currency. If you allow people to pay taxes in Bitcoin, then you encourage them to sell your currency, diminishing its value. Switzerland is doing it because they want to encourage a certain target to live there. Everybody, as of now, is a financial slave to the US because at some point you will have to buy USD. There used to be something being as the gold standards (everything used to be priced), now we have dollar standard. Possibly, the dollar hegemony is being challenged. However, the dollar is so entrenched, giving you access to the safest assets in the world (US treasury)."*

- **Interview 16**

- Personal information

Name and surname	*Giammarco Brega*
Activity name	*Studio Brega*
Profession	*Business Consultant*
Founded in	*1983*
First contact with cryptocurrencies	*2020*
Type	*Accounting Expert*

- Interview

General Questions

Interviewer: *"What is the relation between your business and Bitcon?"*

Interviewee (Giammarco): "We try and incentivize since it fastens up the credit management. In general, I still see a lot of resistance and fear. Working in Milan, I work with many different realities including public companies. When I try approaching clients who operate in difficult foreign contexts, such as Russia or China, they do not listen even though the benefits are clear for everybody. It is undoubtedly an optimal alternative to transfer value."

Topic 4: Accounting

Interviewer Q5: *"Do you know what the general practices in your jurisdiction are?"*

Interviewee (Giammarco): *"It is still very much unregulated. Me and my colleagues take those 3 or 4 official opinion or public statements, and we use them to form interpretations. Everybody has its own. It becomes very chaotic since there are no references. At an international level, they are surely more advanced. Overall, I would tell you that they are considered either as inventory or intangibles. I would absolutely tend to exclude the option to consider them as cash & equivalents. In El Salvador, for instance, it is legal tender. In this context, one can register them as cash since it has legal value in front of a judge and it can be used to extinguish a debt. Indeed, if legal tender, Bitcoin is effectively a currency, only on a different circuit. As of now,*

it cannot be considered as a financial instrument because there is no evident right stating that the crypto currency shall be converted into fiat currency at a precise expiry date. They are not stocks, neither bonds, nor derivatives of any kinds. In the few cases that I could observed, I treat them as intangible goods. If I followed crypto exchanges, I would register them as inventory."

Interviewer Miscallenous: *"What do you think is the main differences between the registration in the Income Statement and Balance Sheet?"*

Interviewee (Giammarco): *"The value of this asset is a complicated matter. I do not have a precise answer on the difference between the value registered in the Income Statement and in the Balance Sheet on the 31/12. I would leave the value which was correct at the time of receiving the asset, to be honest, unless the value changed dramatically. Otherwise, I would not suggest updating it in the financial statements. Also, because one could have taxes to pay on eventual capital gains which would not be true some months later. Overall, the risk is to provide the readers of the statement with an inaccurate picture. I would not consider it, for instance, as a foreign currency because in the end these transactions are always registered in EUR by law. This is my interpretation though. In this moment, there is no correct or wrong answer."*

Interviewer Miscallenous: *"How about the simplified accounting for small companies in Italy?"*

Interviewee (Giammarco): "If we talk about a micro company, such as family-owned cafe, there are still some accounting obligations but without the requirements given to a public company. Basically, only a projection of revenues and costs should be developed. There is no obligation to disclose debit and credits in a Balance Sheet. If one of these companies accepted Bitcoin, one could take these assets as intangible and consider the amortization as a deductible expense. Otherwise, one could consider it even as cash equivalent. However, you see that we are all open for interpretation. Amortization for an intangible would about 1/50.

Interviewer Miscallenous: *"How about fiscality?"*

Interviewee (Giammarco): "*The fiscal entity in Italy considers it as a foreign currency, which is a strong statement in my opinion. If you are a private person, you should complete the RW module, only for anti-money-laundering reasons. It is always advised to declare anything anyway. However, for a value under €51,000, there is nothing to pay. Then, when selling the assets, the flat tax of 26% should be paid on the capital gain. This in turn is calculated through the LIFO method. I do not think micro companies have to complete the RW module though, I think this is made for private people exclusively. However, I would not say fiscality is a big deal until you do not sell out."*

Interviewer Miscallenous: *"Is there a legal definition?"*

Interviewee (Giammarco): *"From a legal viewpoint, there is no definition. There are some court decisions and some case study. A professional can look at those. However, this is not mentioned by the Civil Code."*

Interviewer Q6: *"What should be done to boost adoption?"*

Interviewee (Giammarco): *"I expect something vertical to come out, such as an article only concerning crypto assets. I think there should be a legal norm only on that. At an operation level, once some companies start to accept it, they will set the standard for mass adoption. However, I think Italy is not crypto friendly, as the main politicians recently released declarations proving a low opinion on that."*

- **Interview 17**

- Personal information

Name	*Michael Merz*
Profession	*Manager*
Job Title	*Head of Accounting*
Company	*Bitcoin Suisse*
Founded in	*2014*
Accepting crypto since	*2017*
Type	*Accounting Expert*

- Interview

Topic 4: Accounting

Interviewer: *"What is the main challenge for you in accounting for cryptocurrencies at Bitcoin Suisse?"*

Interviewee (Michael): "*The main challenge for us is to manage all the different cryptocurrencies in accounting software such as SAP or Abacus. Overall, they just consider 200 currencies in the world while we manage 220 cryptocurrencies. Managing 200 different currencies lead to long and hard to read Balance Sheets. Moreover, there are no ISO codes for the currency names.*"

Interviewer: "*Is there a legal definition of crypto assets and cryptocurrencies both in the international jurisdiction (IFRS) and in the Swiss one?"*

Interviewee (Michael): "*They call it "distributed ledger technology". All immaterial rights having distributed ledger technology are called "tokens". The FIM (Swiss Financial Authority) tried to build a legal framework providing 3 classes: payment, utility, asset tokens. However, this is just a communication. The swiss financial market authority are not allowed to provide their own laws, so they publish communication which is nearly law. In the tax environment they adapted the work and use it differently. The main problem with this classification is that there are also hybrid tokens, like Ethereum. Now, the differentiation between payment and utility is blurry because Ethereum is a utility token having a native payment token. Switzerland was criticized to be too fast for classification, although they had to rush to manage all these crypto organizations in Switzerland.*
The problem on the IFRS is that it's "principle-based" but the lines are fixed. For instance, cryptocurrencies would never enter the cash & equivalents. Even if legal tender, it must be

legal in the whole nation. The provider must be the national bank, state backed. The right approach would be to think on the purpose of holding crypto. If you're a professional working with it, this can be inventory. If you send out invoices that are be paid in crypto as part of a usual business operation, it can also be considered as a receivable. However, just holding according to the IFRS consists of an intangible. Moreover, you must include the VAT in the price to be paid in crypto. As for securities, asset tokens can be classified as that (example of buying stakes of the houses via blockchain)."

Interviewer: "*What are the financial reporting practices in the Income Statement and Balance Sheet both international and in Switzerland?"*

Interviewee (Michael): "*Our accounting framework definition is very small in Switzerland. Accounting law in Switzerland is 20 pages long, while IFRS is 2000. For this reason, it becomes more flexible. If you treat them as Intangibles in Switzerland, you do not put market values in the Balance Sheet. Speaking of smaller companies, they usually have fiduciaries in Switzerland providing interpretations. The fiduciaries do what they want as small companies do not need to be audited. Sometimes, they can also register them as cash Furthermore, the parliament just accepted the blockchain law in Switzerland. Politically, we say yes to innovation, but financial institutions are still quite rejective. As a result, there is a big room for interpretation. If you want to have a liberal accounting, you follow politics view. Otherwise, you follow the one coming from financial institutions."*

Interviewer: *"How about taxation policies concerning cryptocurrency holdings?"*

Interviewee (Michael): "*If the prices raise, there are taxable unrealized gains. If you're a private person, you buy at 10k and sell at 60k, the cap gain is tax free. For companies it'll never be tax free. As a company you have the responsibility to be consistent in valuation. Swiss authorities actually put valuation rates at 31.12 for cryptocurrencies. This was made for SMEs in Switzerland."*

Interviewer: *"Do you think Swiss jurisdiction is a friendly one?"*

Interviewee (Michael): "*Swiss jurisdiction is very friendly. Example of 2017, the price was very high on 31.12. at the beginning of 2018, the price went down. The jurisdictions allowed a probation at tax level. What is lacking is a regulation for businesses such as exchange."*

Topic 5: *Future trends*

Interviewer Q6: *What should be done in the future to boost adoption?*

Interviewee (Michael): "*I think a company should accept cryptocurrencies but they needz treasury strategy. At the moment, I would directly convert it for small SMEs as they usually have no clue. The future will have to integrate a future asset class. Now we have only cash and securities. Crypto will have to be an asset class on its own."*