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"Bitcoin and Blockchain as the ultimate democratic tools"

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INTRODUCTION

In the last year it has been reassessed by over 1000%, and now it is tempting to many, even as an investment it is subject to strong fluctuations, and central banks invite to the utmost caution; let's talk about the Bitcoin, the crypto currency born in 2008 and that has reached 11381 $ against the 700 $ a year ago. Bitcoin is a digital currency, created by computers that solve mathematical problems. It is also called crypto-currency, because it uses cryptography for its functionality. Only the pseudonym of Satoshi Nakamoto is known of his inventor. There are almost 17 million Bitcoins in circulation, worth 190 billion dollars, but you can reach a maximum of 21 million, a limit that will be reached in a few decades.

1.1 What is Bitcoin

What is Bitcoin and how does it work? Let's start by saying that Bitcoin is a coin, but it is not made of metal or paper like banknotes, in fact it does not exist physically. It is a currency only and exclusively digital, virtual, electronic, which exists only and exclusively on the internet, but despite this, it is a currency in all aspects. There are no metal pieces of one or two bitcoins, such as the Euro, or 50 or 100 Bitcoin banknotes, it's all just virtual. In fact, this coin can only be used on the internet. In short, there are no paper or metal versions of Bitcoins, but they are numbers that exist online. But online where? The Bitcoins are on the so-called **Blockchain**, which is a public and online distributed register , which can be accessed with special software called Wallet.

A Wallet is a computer program that allows you to access and manage your Bitcoins on the Blockchain. If you do not have a Wallet you cannot have Bitcoin. Thanks to the Wallet you can receive and send Bitcoins from, and to, other Wallets, yours, or someone else's. Sending is easy, fast and cheap. Bank transfers, for example, cost 1Euro and take one or two days to arrive at their destination, whereas PayPal, for example, is immediate, but costs 3%.

Another special thing to know about Bitcoins is that the Wallets are anonymous, that is when you download or install the software or the app with which you manage your wallet you do not have to enter your name and surname, but every Wallet has only a fairly complex identification code, and you just need to have that code to use it. This

means that all the operations carried out will all be registered publicly on the Blockchain but the user's name or surname will never be written.

What is certain is that anonymity favours the use of Bitcoin for illegal payments, but the same is true of euro banknotes. Furthermore, since transactions with Bitcoin are public although anonymous, it is not so easy to hide them. Bitcoin was born in 2009 and for some time now more and more people are accepting them as a means of payment. The moment they can be used to pay for something, they can be considered a currency in every respect. Almost everywhere in the world there are those who accept payments in Bitcoin, so we can say that bitcoin is a currency accepted all over the world, even if not by everyone. In fact, another peculiarity of Bitcoin is that there is no central bank, for example for the Euro there is the European central bank, for the dollar there is the American Federal Reserve, for the bitcoin instead, the whole system of all the nodes of the Bitcoin network in the world are connected to the Internet to emit them with a very complex cryptographic process. Therefore, since it is not linked to any central bank or to any state in particular, it is not obliged to accept and use it, in a few words everyone can freely decide whether to use it or not. So if you want to make a payment in Bitcoin you must first ask the recipient if he intends to accept Bitcoin as money, he could indeed very well refuse.

But how much is Bitcoin worth? There is no real direct relationship between Euro and Bitcoin or Dollar and Bitcoin. The exchange rate is carried out only and exclusively by the market, ie the law of supply and demand and is very volatile, changing from day to day or from hour to hour.

There is a reference website, which is called CoinMarketcap.com where you can find both the Bitcoin quotation updated in real time in Dollars, but also many other information, for example about the number of Bitcoins in circulation, the platforms that are used etc.

Every day new bitcoins are released on the net, distributed by the so-called Miners, that is, people with special instruments that try to extract these newly issued Bitcoins. This activity is called Mining.

What is the Blockchain? the true revolutionary scope of bitcoin does not lie in bitcoin itself, that is, in the currency crypt, in this digital currency. In reality the real revolution lies in the underlying technology on which the bitcoin is based. This background technology is called blockchain. But what is this block chain? It is a somewhat complex concept. The blockchain is technically a distributed database. When we

connect to the website of our bank via the Internet, we click and see the balance of our current account. Well all the data concerning your current account, then all the receipts and payments that we had, whose final sum from the balance we see, are on a database of the bank's website. So the bank will have its own servers, and on these servers there is a database in which all these transactions are written. The point is that theoretically the bank can go and edit the data in this database. There blockchain was specifically invented to prevent anyone from modifying this type of data. When a database is installed on a server, anyone with access to that server can change the database, and there's no way to stop it.

Why is the blockchain different? because the blockchain is not on a server, it's tens of thousands of hundreds of thousands of different computers installed around the world. There is not a single database, but it is distributed on so many computers that it is absolutely impossible to change it. Indeed it has been calculated that it is not really physically possible to make a change on the blockchain, because you would have to change so many computers with the consent of the same. You must agree on all the computers, and go and make the change on all computers . This change would be so complex, so demanding, that it is not really physically possible. In other words, if someone wanted to do it, they should invest an exorbitant amount. In other words, the blockchain is an inviolable and public distributed database, that is, it is possible to go and see this blockchain because every time someone sends or receives bitcoins it is recorded on the blockchain. The interesting thing is that not only this blockchain, this database is inviolable, that is, once these transactions have been registered, nobody will ever change, but it is also public. the blockchain is therefore a technology that allows you to certify all transactions in this case of Bitcoin, and therefore allows you to manage in public and online all the exchanges of bitcoins. Now why is this technology so revolutionary? mainly for three reasons. the first reason is that it is inviolable. The blockchain is safer than bank sites. in short, bitcoin is a more secure exchange system than the one we commonly use when we connect to the bank's website. Secondly, the transactions managed with blockchain are practically immediate and extremely cheap. Even in the case of bitcoins they are free. If you go to the website of your bank and make a bank transfer, the bank costs one euro. If you do it in Italy it costs more if you do it against foreign banks. With blockchain technology, transactions cost zero and the transaction is instantaneous. Not like the

transfer that comes a day later. But the third reason is what makes the blockchain so extraordinarily revolutionary: a technology that does not only apply to bitcoins, but currently can be applied to any type of transaction around the world; For example, the blockchain could be used to manage the transactions of real estate or land, could even replace the land registry. It could also be used for example on the stock exchange. When making transactions on a stock exchange by computer, you pay a percentage, a commission. With the blockchain you could completely eliminate commissions on bank transactions. Blockchain can be applied to any type of transaction in which the property of whoever sends the good and who receives it has to be verified, so it has a potential of almost infinite applicability. the potential of the blockchain is such that it can affect many companies, especially in the field of finance, which are investing a lot of money because it is a technology that has absolutely unique features. The Blockchain is going to deeply modify in a way also raw, violent, what we already have, many of the technologies we already use and will certainly have many applications. It can be used to pay online via e-commerce, or to book a taxi rather than a train ticket, it can be used for vehicle exchange, it can be used for any exchange of ownership. For example, even the siae could be replaced with a technology based on blockchain, it can change everything because it is inviolable, so it is supersicure and very efficient. It is very cheap, even in some cases free and can be applied to any transaction. So, it is said that in the next 5 10 years the blockchain will revolutionize the world of economic and financial transactions.

1.2. Blockchain and how it works

Generally speaking when we talk about blockchain we start from bitcoin. This is because bitcoin was the first real implementation of blockchain technology. Bitcoin had the merit of making it famous and having created interest around it. Blockchain is actually the infrastructure that is under the bitcoin is also the other criptocurrencies. It's the mechanism that makes them work, it's that makes them so secure. The concept of distributed ledger technology is essentially an architectural concept, as it goes from a centralized architecture in which data are saved in a single database, to an architecture peer to peer then decentralized. This means that each participant will be in possession of a copy of the same data, and more in terms of security, this architecture

should limit the risks deriving from errors or changes to the data, but also from possible attacks on individual databases. There are two types of blockchain or distributed ledger technology. Public networks, like bitcoin, are called permission-less, which means that all participants are completely transparent about the data on the network. Networks instead of permissioned type, are private networks, or networks in which the participants have different levels of visibility on the data.

In this case, to become part of the network, a form of authorization may be required or simply access to some of the data on the network will be limited. Regarding the cryptography blockchain uses mainly two techniques, which are actually already well known and used in current systems, and are the digital signature and hashing; the digital signature uses a public key system to encode and certify the messages sent. Each participant therefore has two keys, a private one that will only be secret and will only see him and the other public accessible by those authorized to communicate with him. the operation is very simple because with one key the message is encrypted and with the other one it is decrypted, thus making it readable again. Each participant then has his own key pair, one public and one private. In particular, taking bitcoin as an example, the public key also corresponds to the participant's username, which thanks to the private key can access and use its own bitcoins. Let's not forget that the blockchain used by bitcoin is a distributed ledger technology like permission less, so every transaction once traced and synchronized blockchain can be read by everyone, in a totally transparent way. Bitcoin does not ask for any verification or identification between the public key used and the individual who actually owns it, for this reason it is possible to use bitcoins in a totally anonymous way. There are other platforms where it is already possible to use permission networks, which therefore require digital signatures or are certified and then released by a recognized certification authority. The second cryptographic technique that we are going to see is hashing, which actually is also part of the digital signature itself. It is important to understand how hashing works because it is at the base of the blockchain's functioning and its security. We can see the hashing editor anyway, which then encodes any input data into a coded message. If, for example, we want to code the phrase "hello how are you" we will get coded messages.

Hashing is important for two reasons: the first because the coded message will always be the same every time we pass the same input data, but if we try to change even a single letter or if we add a comma the message will change completely. The second

reason why hashing is important is because we can pass any type of input data regardless of its size or complexity, the result will always be a code message with the same format. Therefore it also allows to verify the equality of even very large data, simply by comparing the messages in code that are generated. So we have seen that Blockchain uses cryptography both for security management, and to allow a quick and accurate verification of data integrity regardless of their complexity. Another fundamental concept is that of consent. Consensus is an automatic mechanism that defines a common knowledge of the processes among the participants of the same network.

We do not forget that we are talking about a peer-to-peer network where by definition there is no node that exercises control over the others. The consent therefore allows to create a common knowledge of the rules on the control and operation of the network. Being an automatic mechanism there are different consent algorithms; the most famous is the proof work that is used by bitcoin, in this case the participants collect the new transactions in a new block, but only one of them will be authorized to add the block to the chain. To obtain the authorization will have to be able to calculate a certain string of characters faster than the others, which will succeed in adding the block will also win a bitcoin compensation. Once the block has been added to the chain, all participants will automatically receive a copy directly in their shared log. This algorithm, however, requires a lot of computing power, which is why new algorithms are being created that can be implemented on new platforms according to the different needs of the network participants. The data is managed using a chain of shared blocks, each block then contains the data inside it. In the case of bitcoins, for example, transactions are saved. Once all data has been entered, the block must be closed or certified. To do this, the block is in input in input to a hashing algorithm that then generates its message in code. Blockchain will save this code as a parameter within the block itself, so the block is now closed and then certified each change any parameter will invalidate the block itself. When you generate a second block in addition to the parameters we have already seen it will be important to include the code of the previous block, so each block will always refer to its previous block, which will be certified generating the code of the new block and so on for all the subsequent blocks. With this blockchain mechanism it makes sure that all the blocks are linked to each other, so any change within a block will not invalidate the block itself, but will invalidate the whole block chain of blocks. Obviously an attacker could modify the

block and regenerate in cascade all the acid of the cat But the hashing, as we have seen, keeps the shared register synchronized and does so every time a block is added to the chain. This means that to make the change effective it must somehow be done on most nodes in the network, and this it means that the more nodes there are the blockchain guarantees data persistence, limiting counterfeits, frauds, or any changes. So blockchain is a type of distributed ledger technology that manages data through a distributed register among network participants. We have seen how it uses cryptography to increase data and transaction security. The concept of consent to manage control transparently without intermediaries and data management that works in an up and only manner is therefore ensuring persistence and integrity because it does not allow to delete or modify existing data.

1.3 Blockchain in business

Let's see how this technology fits into the business world, and what its benefits are. We start from the business network, or from those commercial networks, where exchanges of goods and services occur between different companies. Depending on the sector, the type of companies and the transactions involved, each commercial network will be different from the others and particular requirements, for example it may require private and confidential information management, or data tracking, for reasons of analysis and competitiveness. The companies themselves can be found in several markets, so they are subject to different regulations and critical issues. The assets that are exchanged within these networks are generally called assets, and contribute to creating value for companies. Assets can therefore be tangible or intangible, and among them we find also monetary goods, in their material form, but also in the digital one. The transactions are then generated with the exchange of these assets. At the moment each participant must track and record all transactions for various reasons, such as legal issues or simply for business and market analysis. Then there are regulatory bodies that can access this data to perform control, verification and regulation functions. As we know this is a reliable and widely used system for some time, plus thanks to recent innovations now you can use modern digital systems to automate some of these features. Despite this, however, many infrastructural limits still remain; First of all, it is an inefficient mechanism because every company has to deal with the verification of the protection of the update of its data. As we have seen

in fact for every transaction there are at least two organizations that track exactly the same data. Moreover, it is also a costly system, as verifying the correspondence of data in the different registers continues to require very long times and obviously high costs. Finally it is a vulnerable system, the data in fact reside on individual databases so they can be affected by both mundane modification or cancellation errors, but also by possible frauds or counterfeits that can be very difficult to identify, and to limit. Let's see how to introduce in this context the concepts of blockchain, which we have analyzed previously. First of all, the distributed blockchain architecture allows to connect all the participants of the network in a direct way, without intermediaries. Secondly, each node in the network has a database containing exactly an updated copy of the same data, which therefore remain continuously synchronized automatically. The use of cryptography and permissions allows companies to limit access to data in different ways: for example by granting access only to a specific company, or by creating exclusive communication channels between some companies in the same network. There are already several platforms that offer this possibility, just to meet the commercial requirements, such as confidentiality and competition management. All of this is then regulated in a transparent and automatic way by the concept of consent, which creates a common understanding of network rules, such as verification of access and trustworthiness of transactions. The verified data are first saved in persistent concatenated blocks, and then synchronized between all the nodes in the network. In this way the authorized companies will be able to easily consult and verify them. Another important concept introduced by blockchain is that of smart contract. Smart contracts are used to automate transactions based on conditions that are previously agreed.

We can think of smart contract as a contract between companies, or as a regulation to take advantage of certain services. Basically it can therefore define simple transactions such as downloading a paid music content, but also more complex transactions in which there may be more companies or more transactions involved. once the logic inside is established, the smart contract, like any other transaction, is checked and saved in the blockchain, and then synchronized on all the participants in a public or private way according to the requirements of the contract itself. At this point the contract can then be verified and performed by the other participants, and the transactions and the logic defined within it will then be invoked automatically. Obviously the big difference with a normal contract is that the smart contract is

completely digital, and therefore it is programmable and executable every time a certain condition occurs.

In fact, therefore, the smart contract can make all the exchanges of intangible assets instantaneous, but it can also speed up tangible asset transactions, perhaps with the use of other technologies such as sensors and artificial intelligence. The benefits of blockchain in the business are therefore multiple: first of all a time saving, for everything related to the bureaucratic aspects including checks on data, the issue of licenses and the various checks. In the same way, it favors a reduction in costs related to all the operations involved, including costs for maintaining and protecting company data. it then greatly reduces the risk of errors or fraud on data management by introducing the concept of persistence, and thus preventing changes and deletions or updates of data as occurs in local or centralized databases. Finally it creates new market opportunities; This is because it ensures reliability in the participants of the sales network, and includes the possibility of directly contacting new partners without going through interventions. The concept of blockchain in the business is therefore highly innovative from an infrastructural point of view, directly connecting companies to each other and also provides innovative tools and secure databases to manage the information exchanged.

Chapter 1

THE BITCOIN UNDER A POLITICAL POINT OF VIEW

1.1 The bitcoin under the political point of view

Bitcoin is not only a huge change from the point of view of technology, but it is also and above all a change from the political point of view. There is a beautiful quote by Milton Friedman[1] that basically, in 1999 ,already predicted Bitcoin. He said that the internet (which was coming in those years, it was beginning to spread) will take away a lot of space from governments, and one thing that is missing, but that will come soon is an electronic payment system that allows people to exchange money directly from A to B, without A knowing B and without B knowing A, and doing so in total safety. He basically predicted Bitcoin. So the first mention is that Freedman already talked about digital money well done, which would have to impact with governments. In fact, if you pay attention, many of the technologies that allow Bitcoin to exist and the elements that make up the Blockchain, already existed for 30 years, others for much less, but there have been two major changes and introductions by of Satoshi Nakamoto, who has always been extremely skilled at putting things together in the right way, but one very important thing that he has managed to add is precisely the political element.

We talk about the fact of how a company is carried on, how a community is managed. The crucial point is precisely how the Miners' society is managed, ie what are the rules that underlie the coexistence of all these elements, which are the ones that carry on the Blockchain and which are fiercely competing with each other. other. The decentralized application puts the accent on the rules of the protocol and therefore all the nodes are encouraged to follow the rules of the protocol and doing so both their interest and that of the community. In the film "A Beautiful Mind" this concept is at the center of Nash's thoughts, that is, in the moments when you find the system to satisfy your individual need and this then turns into an advantage for the whole society, it is the emblem of perfection.

The beauty is in having triggered this system of game theory, which allows this system to continue to work.

A famous phrase by Rothschild said "give me control over the monetary policy of a country, and who makes the laws I can not care". This phrase, so cynical, makes it

[1] Milton Friedman (Brooklyn, 31 July 1912 - San Francisco, 16 November 2006) was an American economist, principal exponent of the Chicago school. His thinking and his studies have influenced many economic theories, especially in the monetary field. Founder of monetarist thinking, he was awarded the Nobel Prize in Economics in 1976.

clear that in the end the politics of a country or in any case of a nation or a state, is essentially decided by those who have the purse strings and who decides how the money, the resources, may or may not they can move from one side to the other. It is quite natural that when a new currency is born that is designed from the outset to be resistant to all systems of censorship and practically unblockable from the technical point of view, all those who are calm to say that they control monetary policy of a country, and then then politics make her do what they want, once they lose control of what the rudder they hold is not particularly happy.

Clearly much of the expressed negativity of the cryptographic comparisons, many of the policies we see made by states, banks, the regulatory request, the persecution of the exange, forcing them to close, are all bitcoin wars, because it is the strongest form of power that you can exercise simply by checking the currency. Do not control the coin, you no longer have power. The currency directly controls people and those who are part of the network and it is they who have power.

One thing no one can deny at this point is that Bitcoin has actually shown that another way to manage money, manage exchanges is there and it also works very well. His problems, of course, can be solved, they can be turned in another way, you can still try to override them and this demonstrates the fact that it is not necessary that it is as it was for 600 years that the currency does not it can change, but it can be different it can be not the usual ones, it can not be used to control the policies of the states. It is a demonstration that obviously scares many. This demonstration is there for everyone, it's not a problem, it's a huge advantage, and that's why we're witnessing a change that could be epochal.

1.2Governance and legislative policy approaches

From the point of view of the possible governance of the blockchain, some approaches have been identified that, starting from the need to provide rules in order to foster innovation deriving from new blockchain-like technologies, identify three paradigms to guide legislative and policy approaches. legal regulation. These paradigms are called "boxes" just to make the idea that they must be seen as containers, whose actors, objects and purposes are however different from each other.

The first approach is the one related to the "green box". In this context, the discovery of a new technology has no impact on the existing legal system, as it is new

technological ways to resolve issues that already have their own discipline on the part of governments. Consider for example the passage of a communication network from 3G technology to a 4G. What allows this transition are technological innovations on the methods of transmission and compression of data, but no government would obviously be obliged to dictate a new legislative discipline to regulate the use of an existing technology and that has only been implemented.

As part of the blockchain, the most obvious example is Ripple, a blockchain-based interbank payment system that allows participating financial institutions to settle transactions between them securely and quickly (such as money transfers, securities, etc.). This type of private blockchain provides a new technology to perform activities that were already performed previously (eg using clearing houses or SWIFT codes[2]) and does not generate significant legal impacts, in the sense that it does not seem necessary to issue new ones. rules in order to regulate the discipline.

To understand if this is a case that falls within the green box, Julie Maupin suggests two fundamental questions:

1. are we dealing with a use case of the blockchain which actually replaces some back-office function?
2. Has the solution been implemented by one or more regulated entities within their already regulated function?

In these hypotheses one should refrain from introducing new regulations, seeking in case to adapt the existing rules. It is more a question of tackling the problems from a technical and non-legal point of view, trying to adapt the legislation where the technological differences compared to the current systems are more pronounced.

The second category is that of the "black box". These are cases of use of a new technology for purposes that are illegal in themselves and in which the classic dilemma is faced about a judgment of moral value intrinsically linked to a technology, the answer of which, however, has always been to affirm the moral neutrality of technology, in fact having to focus attention on the purposes and uses that are made of it.

[2] SWIFT stands for the Society for Worldwide Interbank Financial Telecommunications. It is a messaging network that uses a standardized system of codes.
SWIFT assigns each financial organization to a unique code that has either eight characters or 11 characters. The code is called interchangeably the bank identifier code (BIC), SWIFT code, SWIFT ID, or ISO 9362 code. UniCredit Banca, headquartered in Milan. (See related: What is the difference between an IBAN and a swift code? It has the 8-character SWIFT code UNCRITMM.

The question to ask is:

1. a) Is the objective pursued illegal regardless of the technology used?

For example, bitcoins have long been accused of being an illegal tool, often confusing technology and effects with the objectives that are pursued through them. Having been the most used virtual currency in the cd. "Dark web"[3], often used also for the purchase of prohibited products (weapons, drugs, etc.), bitcoin risked being considered illicit as an "idea in itself" (ie as a payment instrument released from traditional circulation mechanisms) of the coin). Today, however, bitcoins are the most traded cryptocurrency in the world, and the approach that wanted to make them illegal in itself is now largely outdated.

In such hypotheses the greatest challenge is given by the speed with which those who pursue illicit goals manage to escape the attempts of control by the regulatory authorities. When we write anyone who wants to offer a "real" currency exchange service to bitcoins (or other currencies), it is subject to anti-money laundering regulations, and must therefore recognize those who provide their services according to these regulations. However, non-regulated exchange services have rapidly arisen that allow the exchange of bitcoins with other cryptocurrencies while maintaining anonymity and thus providing the tool for making payments anonymously.

It is evident, therefore, that the cases that fall into the black box require coordinated action among the governments, as they require all those manifestations of crime that take on a cross-border character, and that in such hypotheses it is not the technology that is illicit in self, but the ends that are pursued by using it.

The third paradigm is that of the "sandbox" or "sandbox". These are the hypotheses in which the new technology effectively allows unknown structures and applications in the world of law, and whose innovative potentials could bring benefits to the community whose effects, however, are not known at present. These are use cases that are legal but carry risks that the authorities do not want to leave unregulated and which go beyond traditional models.

In order not to curb innovation within traditional schemes and to check if these cases can be regulated by alternative standards, some countries have started specific initiatives (the UK UK Financial Conduct Authority or the Global Blockchain Council set up in Dubai) in which companies and individuals who use blockchain technology

[3] the part of the World Wide Web that is only accessible by means of special software, allowing users and website operators to remain anonymous or untraceable.
"the Dark Web poses new and formidable challenges for law enforcement agencies around the world"

are invited to participate, within a context that is not yet regulated but which is supervised by the authorities, to understand how to intervene and regulate any new phenomena and case.

This is because it has been realized that some uses of blockchain, albeit legitimate, could have far-reaching implications and consequences that current legislation is not able to address. The most cited example is The DAO, a sort of venture capital fund based on the Ethereum blockchain, which had none of the ordinary characteristics of these types of funds, nor regulatory regulation. The DAO, in fact, collected the savings from the various participants, recording them on the blockchain, recognizing each of them a "share" of the fund. Investment decisions were made on the basis of majorities as well as profits redistributed based on the participation of each. All this without what normally the right of each country requires for the performance of such activities (minimum capital to guarantee investors, requirements of professionalism and integrity of the exponents, transparency and periodic communications, etc.) and even in the absence of a true and its own juridical subject that did not exist physically and legally.

In 2016 The DAO suffered an attack by some hackers, the consequence of which was to reduce the value of the cryptocurrency on which it was based (Ethereum[4]) of about thirty percent in a few days. Of the approximately fifty million dollars collected in dollars the DAO participants lost an amount equivalent to fifteen million dollars, without any regulatory authority being able to intervene and without being able to obtain some form of legal protection, being a completely new phenomenon.

On the same lines, today we witness a proliferation of services that offer "Initial Coin Offering" (ICO), that is, mechanisms similar to initial public offers that companies, in the "real" world, put in place at the time of listing bag. The ICOs are characterized by the fact that they offer cryptocurrencies to those who participate in the launch of blockchain-based services, but outside of a regulation of such activities can therefore present risks similar to those verified with The DAO.

It is clear that nationalistic and topical approaches to blockchain regulation are destined to fail, both because of the possibility for stakeholders to make the services placing the registered office in every part of the world, both because, being a

[4] Ethereum is an open-source, public, blockchain-based distributed computing platform and operating system featuring smart contract functionality. It supports a modified version of Nakamoto consensus via transaction-based state transitions.

technology new, it would be impossible for the legislator to be able to grasp all the different aspects that would require to be regulated.

Proof of this is the substantial failure of the BitLicense Regulatory Framework promulgated by the State of New York with the intent to regulate services based on blockchain rendered from within the State and that had the main effect of making "emigrate" a large part of companies that rendered such services in other countries that had not regulated these services.

A legislative policy of regulation of the blockchain based on the "sandbox" paradigm, therefore, can only go through a global approach, involving the institutions and international organizations (G20, WTO, ICANN) and adopting standardized technical rules, paying particular attention to a multisectoral approach and with special use cases (with selected actors and monitoring by the authorities).

1.3Blockchain and public administration

To understand how and what the future developments of the blockchain might be in the Italian public administration, it is opportune to reflect on the role and functions that the latter plays within our legal system.

Italy, it is known, is based on the French model, where the administrative authority is an expression of the executive function and is called upon to regulate a large part of citizens' lives, above all and principally in relations with the institutions. Imagining in Italy of being able to disintermediate the public administration through the use of a completely distributed blockchain would be both utopian and anti-historical, since our juridical system was built, starting from the Constitution, on a vertically based structure, which branches off into public central and local administrations and assigning specific roles and duties to each of them (see Article 117 of the Constitution).

All this does not mean that uses of the blockchain, in an authorization or private form, can still be assumed, especially in the context of the maintenance of public registers. If we hypothesized to insert blockchain technology in the land registry and real estate registers, for example, we could hypothesize a system that allows the various legitimized subjects (notaries, public officials, etc.) to make registrations directly, under the control of the conservative , with greater speed and security of the systems currently used. Also within the register of companies there would be spaces to allow the use of an authorization blockchain (for example on the subject of registration of

the transfer of ownership of the company shares), as well as the public car registration could be managed (in this case also without forms overly authoritative control) with blockchain technology.

From an internal point of view of the public administration, the use of a blockchain to manage the administrative procedure of individual administrations could make this process much more transparent, and, considering the characteristics of unmodifiable technology, could certainly bring benefits in terms of transparency, timing and responsibility for administrative action.

Also the documental conservation, which today is implemented according to the rules dictated by the Digital Administration Code and the related implementing rules, could be achieved by blockchain (on the other hand, the law currently provides for the application of time stamps and digital signatures to ensure the inalterability over time of stored documents), with the advantage of a more distributed system, which could involve more subjects and integrating a veritable and secure document management process.

Another hypothesis of use of this technology is that in the habit of the cd. Digital health care. In Estonia, the blockchain is currently used to process health data of about one million citizens, and, given the uncertainties that still exist in Italy on how to implement the CD. digital health dossier, a blockchain-based service could be tested that would allow the various health facilities concerned to directly record the health information of the individual citizen.

The cases of use of the blockchain in the public administration mentioned above are certainly part of the "green box". In fact, it is a matter of using a new technology in already known areas, which simplifies "back office" operations and that could be carried out by regulated subjects. In certain areas, adaptations to the current legislation will be required (think of how to participate in public registers, for example, as already done for the register of companies, the approval of specific models to allow the sending of information requests), in others it will be necessary to implement the law by adopting special measures (so according to the Code on personal data protection (and the new European regulation) personal data must be made public only in the hypotheses and with the methods permitted by law (remember that the blockchain technology also provides for the insertion of meta data for each of the created nodes,

so as to go back to the information relating to the subjects who put in place the transaction)).

Even the current version of the Digital Administration Code (dlvo No. 82/2005)[5], if you really want to adopt an approach such as that of the "sandbox", would require changes to make it technologically neutral, given that today are expressly named some technological solutions to achieve purposes that, as explained above, could be implemented with different technologies, leaving the regulation and identification of the same to the second level technical regulations.

[5] The Legislative Decree No. 82 of 2005, commonly referred to as the "Digital Administration Code", 1 modified integrated and amended by Supplementary Provisions and the corrective legislative decree (Legislative Decree 4 April 2006, No. 159) 2 announced in many press releases as a revolution for public agencies and citizens, aimed at re-establishing tidiness and setting rules for every aspect of the technological innovation. The rules and regulations that the legislator may have followed in the new Digital Administration Code were clearly indicated in the devolution Law no. 229 / 2003,3 that entered the Italian Government the task to:
to. Graduate the evidential value and the probable efficacy of the different kinds of electronic signature;
b. Reviewtherulesoflawinforceinordertoguaranteethebroadestavailabilityofthe telematic operations provided by the public administration, in compliance with the principles of equality, non-discrimination and in line with the regulations on the confidentiality of personal data;
c. Provide legal provisions relating to digital documents, such as the nature of origin and primacy; and to require precautions to ensure the security, accuracy and quality of the content of digital documents;
d. To modify the laws and regulations in the prescriptive language;
is. AdaptItalianregulationstotherulessetoutbytheEuropeanUnion.
Unfortunately, this revolution was only partly successful; in fact the content of the legislative decree that anticipated the code was preceded by a critical analysis from the
Government Council, contained in Judgment No. 11995/2005 of the 7 February 2005 Assembly.

Chapter 2
BLOCKCHAIN AND DEMOCRACY

2.1 Bitcoin as a democratic tool

How could the Blockchain become the new frontier of democracy?

I believe that it is necessary to start from the concept of computation security, without which the principle of legitimacy on which the whole Western democratic system is based would fail. Remember the long recount operations in Florida during the 2000 votes in the USA? The disputed Bush victory, with the intervention of the Supreme Court that effectively blocked recount operations, is exactly what could be avoided with a database structured in blocks where all records are traceable.

This would allow, in theory, to have the winner of the elections in real time, with all due respect to the vituperated exit polls, and considerable economic savings.

But would it guarantee a result considered by the average voter as 100% reliable?

The vote expressed by the citizen for his favorite candidate would become the insertion of a record inside the Blockchain, just as it happens for a transaction in the cryptocurrencies, then unchangeable by third parties, or by the same voter at a later time, since every node in the chain would keep track of it.

In addition, it is now considered the most secure and hacker-proof data management system, since in order to tamper with a data a posteriori, 51% of the Blockchain chain is approved, which if made up of thousands of nodes makes this operation almost impossible.

Another key theme is that of the certainty that the vote is actually expressed by the title.

Each voter should register and receive an authorization to vote, through an ID protected by cryptography and, naturally, subject to verification of the requirements established by law. This would also guarantee the conditions of privacy on the suffrage expressed, a fundamental condition for democracy, as is the case for transactions with cryptocurrencies that are traceable but anonymous.

In conclusion, the technology seems ready, as shown by the start up Follow My Vote[6], but beyond the purely technical aspects, I think it is necessary to think first of

[6] Follow My Vote has been named one of the top 25 non-financial blockchain startups by Venture Radar for innovating and disrupting in the governance sector! In this info-graphic featured above, Follow My vote has been put along side projects and companies such as Swarm and Bitnation, which attempt to improve or disrupt government type functions.

all about the impact that the adoption of such technology, to decide who governs a country , could determine.

The advantages are obvious but, nevertheless, the underlying mechanism is difficult to explain, especially to those who have no notion of computer science, which could make it easy material for conspirators or undermine their legitimacy.

To consider is also the aspect related to the operation of voting itself, which could be carried out on any device and in any place, but stalking the principle of equality of the vote, placing those who have no skills or information technology in a condition of disadvantage in exercising their right.

There are so many open questions and the impression, at least of the undersigned, is that it will be difficult to make the timing of technology coincide with the slower and more sedated ones of democracy.

2.2 Support for democracy

"Digital, and in particular the Blockchain Protocol", during the opening remarks, the President of the Chamber, Roberto Fico, remarked, "introduces us to applicative possibilities that go well beyond the administrative sphere and that concern the modalities with which we adopt public decisions. They can deeply affect the same forms of our democracy ". In particular, noted the third office of the state, "digital technologies can offer decisive support to allow the launching of innovative experiences of deliberative democracy centered on the active and informed participation of citizens in public decisions. Just think of the different tools experimented in various forms and with different purposes among the levels of government: for example the 'public debates' for the construction of major works promoted in several European countries "or, again, the launch" of the British House of Commons ", Of the experience" of online petitions and new forms of consultation of citizens in the context of the preliminary activities of the parliamentary commissions ".

The thought goes immediately to the online vote on the Rousseau platform used by the M5S to consult members. "We are working on new projects. One above all to apply Blockchain voting technology: this will allow a distributed certification of all online voting and a more solid voting mechanism ", wrote last March in a commentary on the Washington Post just Davide Casaleggio, Gianroberto's son.

In this sense, during today's conference, blockchain application systems were discussed which go beyond what has already been observed in the financial field, in particular as regards the development of a more participative democracy and the protection and sharing of personal data. The application of the Blockchain and the private and public key system for digital identities, we said at the conference, presupposes the idea that there is no third party that can be interposed between us and our data, as happens through access through the Google or Facebook profile to secondary social platforms, but theorizes self-sovereign identity systems that are interoperable and freely manipulated - and privately - by the user. Along the lines of the hypothesis of data sharing, the Blockchain could also be used to protect the good par excellence of democracies, namely the vote, the right and the secrecy of the same. Using this technology as a mechanism of participatory democracy could be a next step, since cryptographic keys are not hackerable (or rather not both), and the decision-making mechanism would be decidedly more fluid. It is assumed, in practice, to link to the Blockchain the identities of citizens, for example the documents that we hold in paper form or the same electoral card, because a vote in the Blockchain would have virtually no possibility of being falsified, stolen or not scrutinized .

In the era of fact checking and fake news, the Blockchain technology can be made operational also for the control of what is spread online. The True In Chain project presented by Marco Franco of the IASSP aims precisely to unmask the false news circulating on the Net through blockchain technology. This would work by putting fake promoters in competition with the debunkers, a new professional figure charged with unmasking the false news, creating a real ranking of pages and journalists constantly updated and accessible to users.

The lawyer Fulvio Sarzana said that a wide application of this technology at an international level is not just around the corner, because many environments - even institutional and public - consider it even more a risk than an opportunity. Yet the Blockchain would have applications not irrelevant from the point of view of national security and fighting crime, if you think of all the transactions recorded and the impossibility of hiding them at a later time, even and especially in court proceedings or control activities , in which the instrument could be used.

We have seen that the democratic concept was born with a very noble purpose, that of educating man to a community life by bringing man himself to direct participation,

but the Greeks could not create perfection in time because they did not consider a fundamental variable in this perfect system: man!
Man is the only variable that creates imperfections in a perfect system, due to various factors.
The most important is that of the personal interpretation of Ethics that has been distorted over time by the few to the detriment of the many.
To make understand the concept even better, I will go to the sacred, and pay attention to anyone who believes in a God or follows a religion: Stop for a moment to think about all the religions that were born and have developed over time since man is born, in addition to the fact that they are born from a common principle that is to believe in a God or a superior being to give of answers on elevated and deeper concepts such as that of creation, are also born to give divine laws designed to educate the person to a life of community, how? Giving real community rules to be followed that if respected they would have granted a prize after an earthly life and if not respected they would have given as a penalty the wrath of a God or an eternal damnation.
The education given by rules dictated by a Higher Being rewarded the individual in the afterlife and through reverence and divine fear a mechanism of perfect management of a vast community was triggered.

All this worked very well until the creator of the same rules was alive, but the man over time has modified these rules to his liking and depending on what he considered right or wrong on a subjective, geographical and social basis, changing over time the primordial concept.

The Blockchain was born from a concept of absolute and direct democracy granted to the large community, which is the world (the old Poleis Athenian) but eliminating the variable that over time can modify the very concepts of Democracy and Ethics, the Man .
The blockchain does not belong to a state, a single person or a group of people, but belongs to the community, the initial protocols were written on a very complex and strong basis, regulated by an algorithm, and as we have also seen from the parallel application of artificial intelligence and can only be integrated in the improvement of the blockchain itself, but any improvement and / or change can only be made by the community itself that belongs to the Blockchain and that accepts the absolute change in absolute majority, the algorithm foresees this . (Direct Democracy)

We think that today in China a game / test has started a year ago that comes to be almost a reality (for now it's a game only, but remember that in ludo veritas), participating in this game the person aims to get points by making real positive actions for the community and the more you make real positive actions the more you accumulate points and the more you accumulate points and the more you grow in the statistics of liking the game that lead the individual to have a great consideration from the community , Acquiring value within the same. (Personal Social Branding)

So what triggers this game?

Two things:

1. Get people to perform positive actions for the community through competition, which over time will become customary, because the repetition of an action creates emulation and habit of doing it, making it normal.

2. Resolves a problem within the community itself, that of having the certainty of talking to a person with an ethical and high honesty. (Imagine if a company were to hire a person, or if you wanted to buy a second-hand car, or even better if the politician was in blockchain, who would you trust? And you know that it already exists in e-commerce sites and is called Rating and gets up in positive if the seller in question has not pulled packages to the buyer)

I know what you're thinking about, because it's the same thing that I thought about, that this mechanism has its pros and cons.

On the last meeting of Ethereum in Paris there was also much discussion of this Experiment, which in my opinion will become a blockchain, to show how today in the zero phase of this cultural revolution, ethics is fundamental for the creation of a different world and new, because if a rule of the game, for absurd, saw as a positive action kicking a dog to take points and grow in statistics, would lead to the creation of a world far worse do not you think?

But this could happen when the rules were written by a few people and passed down verbally over time, or from a state, which could distort the concept of ethics itself or create objectively false rules, but if these were imprinted on blockchain and managed by a algorithm approved by the same blockchain then the result would be very different do not you think?

It is a very complex matter to understand but it all stems from the initial concept of which I spoke, the man has failed in trying to self manage because even the controller

of who controls is corruptible, a car is not corruptible and millions of machines much less.

All this can be a little scary for a wrong mindset, but think only of this, since man is born and has joined the community has always been managed by a boss, a superior being or a group of people, then the single human being has always been managed by one or more people, and this we know is a system that has failed.

The evidence is evident in history and in the present, see wars, absolute poverty in certain parts of the world or of our own country, inequality, violence, ignorance, so man can not handle man and a divine being can not manage 'man because the intermediary would always be man, and therefore a computer without feelings such as greed, power and violence can manage man?

Who created the blockchain starts from a basic principle, freeing man from financial slavery in the first place and making him a better being able to live in a vast community that is the world, which after the advent of the Internet has become smaller geographically .

Can you be afraid of this?

Yes, how could you be afraid of the Internet or how to be afraid of smartphones or social media, but it makes me less afraid of thinking that my life is regulated by a few men.

True democracy is born in Athens but over the centuries has been distorted by the only variable in the system "man", eliminating this variable decision is restored order, hence the concept of blockchain.

A day will come when machines will free men - Nikola Tesla

2.3 Blockchain and direct vote

The systems can envisage representative democracy as a tool of direct democracy, and this is already foreseen by our constitution, where there are 3 instruments of direct democracy within which are: petitions, laws of popular initiative and referendums, both abrogative and constitutional, which are expressions of the fact that the people can act directly, can, in the simplest way, produce a petition to the chambers to solicit an intervention. It can itself become a legislator by producing a text which will then be approved (in this case to representatives of representative democracy), or it may itself replace the representatives of representative democracy through referendums

which at this stage is only abrogative, ie to elect from the disposition of the dispositions, or in the case of the constitutional referendum, to confirm a proposal of reform that has been advanced by a third party. But there are a whole series of instruments of direct democracy that can be implemented within the statutes of local authorities, and on which the jurisprudence has ruled over the years going to define or expand the scope of these instruments. We are once again talking about petitions to the citizens' initiative proposals, the interpellations and the questioning, the consultative referendums, which are those at local level that have had more luck in the statutes and their application, and referendum that at local level, as recognized by the jurisprudence and in an optic of interpretation of a single text of local authorities, they can also be of a proactive nature. This means that at local level, where the statute provides for it, the city community can fully replace the community of elected councilors, through the preparation of a text that is itself a decision of the city council, for example, and then submit it to approval. From this point of view the hypothetical formulas that can be advanced are of two types: one is that of the Californian-type propositional referendum, where in the referendum there is the same proposal that then, where the referendum is approved, becomes immediately operative at the level local or there may be a different type, which is that of the idea of proposed resolution that is submitted to referendum but then it is up to the deliberative and representative body, that is the city council, then the task of translating it into deeds and then letting it enter in force. In both cases with a binding effect on the decision that citizens have taken.

Regarding the electronic vote, to rejoin the two extremes, ie direct democracy and electronic voting, we must make a terminological distinction, because under what is generally called I-Voting, in reality there are several concepts. The first is that of electronic voting in the cabin (which is, for example, what was experienced in the consultative referendum in Lombardy) where electronic is the fact that the device to which you vote is a tablet. Paper support is less , in favor of an electronic support, with voting machines and, as for example in many US states, during the presidential elections, or what is remote-voting or internet voting. In this case, the vote is independent of the physical place to which traditionally used, and the voting takes place at a distance, or via the internet with a dedicated network, or via devices connected at a distance but dedicated to voting. Or, in the most extreme hypothesis, it can happen through devices that each has through a specific application, which is the

most futuristic hypothesis, and the one that somehow comes closer to the idea of direct and instant democracy, liquid democracy, in which at any time you decide on individual tasks, they approve and automatically go into decision. In fact, the speech of daily voting is a speech that now begins to be almost 25 years.The first online voting experimentation is 1995 in Australia, where a first online voting is made in consultative terms, of course on the nuclear text French in the Pacific. In 2000 there was the launch of this very important project of the European Commission which was the cyber-vote project, which led to experiments in some European countries such as Sweden, France and Germany.

2005 is a year of turning point because it is the year in which a small European country of Eastern Europe begins its transformation towards what is commonly known today as the smart-nation par excellence, that is the state in where everything is completely digitalized. On the e-stonia paragraph 1 website of the claim "we have built the digital status now you can do it too". With this commercial in Estonia you actually go to the public offices only for a few practices, one of these is to get married or to divorce , while everything else is done quietly from home.In 2005, Estonia is the first country to vote on the internet in a local election, and vote for 9317 people, so a very small number and, as it also came out in the news of the last days because Beppe Grillo, every time he will do some intervention always quotes an Estonian model as an online vote, is that Estonia, it is true that also implements online voting in the general election, but maintains a "spurious" system in the sense that it is possible to vote online online, in which case the vote is spread over several days, after which the online voting phase closes and citizens can also vote with the traditional vote in cabs na. Obviously they do not have the opportunity to vote twice, so if they have voted online the system records that the vote has been made and therefore if they go to the booth for the second ballot they are not accepted.

But even the Estonian system is not a system that has completely replaced the online voting with the traditional vote. In 2007, Estonia is the first country to experiment with internet-voting at national level: from February 26th to 28th 2007 and 30,275 citizens vote. Two more interesting steps: one is in 2011 where there is this Gujarat which is the first Indian state that experiments with internet voting, and in 2011 there is this first experiment of internet voting for Swiss citizens living abroad . In a first phase, ie in 2011 it is an experiment limited to 110 thousand Swiss citizens, in 2014 the possibility is extended to all Swiss expatriate citizens who at this moment can vote for

internet elections from abroad. But what are the main concerns about i-voting? They are basically four types of concerns, and can be completely overcome by the implementation of Block-chain technology.

The first set of concerns are attacks on the server that handles voting, data theft, electoral fraud.

The second type of concern is the maintenance of anonymity of the vote. One of the central cornerstones of the vote is missing, that is, the fact that the vote is free and secret.

The third type is external interference from other nations during voting operations.

The fourth type are stolen identities and forced voting.

They are normally the four concerns to the four fears with respect to which the i-voting system should be taken with great caution, because it can lead to paradoxical results.

In reality it is something that we take for granted, but which holds a large part of our legal system and social relations. This thing is called trust.

Most of the rules exist simply because they are not massively violated, but because the violation is contained in a certain area. If everyone were to violate a rule, the rule would simply not exist; The same thing happens for voting systems. The voting systems are safe simply because there is a set of rules that makes them safe, but also because there is not a complex of citizens who systematically try to alter the voting operations. The same thing obviously applies in i-voting; It can be said that the system is a system that in some way can reproduce results on a large scale, more damaging than the result that can be produced in the case of paper voting, but the issue of trust is central because the use of Blockchain can overcome these four categories:

The first is what has been told up until now, that we are in the presence of a distributed network against the traditional client-server setting, centralized server. For example, the Napster case, which was the first peer-to-peer system for the exchange of music files. The big news was that basically it was an architecture that had no central servers, or rather, there were some servers but these servers were not used for the exchange of files that occurred between peers, between computers connected to the network, but simply served to index those who connected at that time to the network, and then I knew that on the other side there was "Mario" that it was connected, so I could draw from Mario's computer that had shared a part of his server, so in reality this peer-to-peer architecture, and the idea of overcoming the central server element, is one thing which belongs almost to the culture of the internet. Internet is somehow a free force in

itself, and it always seeks ways, suppose it allows us to overcome the elements of excessive centralization, what it means from the point of view of the system i-voting? very easy to understand, if there is not a central server the attack is much more complicated, I do not have a point to attack to knock down the voting system but I have so many knots and more is more it will be difficult, if not impossible to throw down that system. And the more controversial the system becomes, the more reliable it becomes.

The other element is that the vote must be a secret vote, with Block-chain transactions are verifiable, in the sense that I am able to say with certainty that that vote has been deposited in the virtual urn but it is not possible to connect or at least it is extremely complicated to connect them with the subject who performed it.

This basically means that I am able to reproduce exactly what I do when I leave the polling booth, I throw the card inside the urn.

Being ten, twenty, thirty, forty, when it opens it will be difficult to recognize exactly what I threw in the urn compared to those who threw the other subjects who have intervened.

The other element is that nobody can control the majority of the network once the rules have been set in smart contrast. Once again the law becomes an algorithm, one could say that it can not be changed or changed, and therefore only the authorized voter can vote through his own account.

The other interesting thing, which is what happens for example in Estonia, that the online voting can be changed until the last second closing of the virtual urn. This is a big change from our approach to voting. When we leave the cabin we have barred the symbol of the party for which we want to vote. Here in reality there is a sort of right of reconsideration, or I can vote until the virtual urn is closed. I can change my vote, and this in reality serves above all in a context no longer controlled, no longer protected as the polling station, to avoid that there are forced votes, that I have voted A at a certain time because I was in a situation of constraint, after which, at that point has altered the genuineness of my vote. In this way I can also give an answer to that problem. This block-chain-enabled voting system can be said to be structured in two ways: the basic characteristics are that since there is no central authority, in reality every voter becomes the "teller" of the voting booth, but not only of the his and his seat where he goes to vote, but of all the seats in the country.

in reality every way is able to verify the "ledger" and this means that everyone is able to verify that the same book, which is duplicated, tripled, quadrupled on all the nodes of the network, has not been altered.

So it is still the same, and the vote is genuine, the votes have not been altered because once again every element of the network would be able to verify the alteration and in fact every citizen is not only a voter but also a "scrutineer", " controller "of the legitimacy of the state's work. They are basically two paths that can be traveled to enable a system based on block-chain: The first is to create a new system designed with the specific characteristics for the election and the electorate, what may be called a sort of Block-chain status, or lean on a consolidated block-chain, where the strength is in the chains, in the length of the chain and in the quantity of subjects that are part of this chain.

So, the more the base is, the more solid the chain on which to lean, and therefore in some contexts, especially for organized elections that have a smaller entity, perhaps it is a question of local consultative processes. Rather than building a system of its own, it can make sense to lean on a more consolidated block-chain. This is a very interesting case study of 2016 which is that of the Colombian plebiscite on the peace treaty with with Farc. On October 2, 2016, this plebiscite of 6 million Colombians living abroad was held. Only 590,599 thousand can vote because they can only vote those subjects who had previously registered in the consulates for a previous election, so in fact 90% of the subjects who also wanted to express their preference, can not vote. inconvenience this association creates a site that is a digital plebiscite in which it puts on a vote based on Block-chain to allow the almost 6 million Colombians living abroad to express themselves where they had been cut off from the official government.

So it makes a sort of counter plebiscite of counter voting, not in opposition, but in support of that "state" and it does so also with an element of greater innovation, instead of simply saying yes and no to the agreement, the text of the 'agreement, unpack in the various points and then ask to vote for each of the points, if you were in favor or against, because the technology in this case allows you to overcome the constraint that the paper element would have placed, that is to have a file with 10 15 20 questions all together and to vote, but through a progressive process based on several days to achieve a sort of participatory process at the local level, in this case at national level is a determination, a greater awareness on the questions and the themes of the agreement because then in the end the direct democracy, because it is not the democracy of the

click, or forms of web-crazia in reality presupposes forms of knowledge and participation ne, then this example is particularly effective because it shows that technology can be used not only to enable people who otherwise would not have been able to vote, but to form an awareness that without digital technology, without this technology they would not have, and therefore this it is a particularly interesting element because it brings us to the last scenario, the most futuristic scenario of the automatic execution of electoral promises. An online voting system, based on the block-chain with a smart contrast that carries the electoral promises, could be a way to monitor the execution of the mandate of the individual parliamentary and above all, in the case of elections that are based, for example, on colleges uninominali, where there is a very close link between what the MP says, his own territory and therefore in that idea of overcoming the mandate constraint. The mandate constraint could be represented by the smart contrast and by the automatic or non-automatic execution . Or better from the verification of the execution of the electoral promises and then with a sanctioning mechanism that triggers automatically when the system realizes that these promises have been "promised by a sailor".

This block-chain, at least the use of the block-chain for the system of direct democracy is something unique. Faced with great innovations there is basically an attitude that a professor of American law has called "cultural agoraphobia", that is, compared to all the things that displace, the first attitude is to say no, an attitude of closure. He makes a very fitting example: "imagine that I am a start-apper and come from you who are financiers and tell you that I'm going to create the largest encyclopedia in the world, and put two different hypotheses on your plate: one is to hire the best editors, the best scholars in the world and, on the other, to put on a website and let people write to us. Which of the two would you choose? Probably you would choose the first one, only the second is wikipedia "

2.4 Roberto Fico: The Blockchain Leverage for Participatory Democracy (Speech)

The blockchain? A turning point for participatory democracy. Roberto Fico, president of the Chamber, speaking at the conference "Collective Intelligence: Blockchain technology", organized by the undersecretary of defense Angelo Tofalo (M5s), highlighted the added value of technology for the exercise of rights.

"The digital, and in particular the blockchain protocol, introduces us to applicative possibilities that go well beyond the administrative sphere and that concern the modalities with which public decisions are adopted. They can deeply affect the same forms of our democracy. Digital technologies can offer decisive support to enable the launching of innovative experiences of deliberative democracy centered on the active and informed participation of citizens in public decisions. Just think of the different tools experimented in various forms and with different purposes among the levels of government: for example the 'public debates' for the construction of major works promoted in several European countries. This is in line with the principles enunciated by the Aahrus Convention, in particular regarding the participation of citizens in public decisions that have an impact on the environment ".

Fico reiterated his commitment, since the settlement speech, to "really realize this perspective" and recalled the experiences of other Parliaments as "the British House of Commons, which launched with great success the experience of online and new petitions forms of consultation of citizens in the investigative activities of the parliamentary commissions. The final goal goes beyond mere participation or mere involvement, but rather aims in the direction of fully engaging people in the public decision ".

"To achieve this ambitious goal - Fico reasoned - the use of technologies is not neutral. The various possible options, also in the light of an innovation that follows a more and more accelerated pace, must be weighed and discussed allowing the widest possible participation, especially when applications that touch the very heart of democratic procedures are hypothesised, such as the expression of the voting and electoral operations. Looking at this perspective, I consider it very useful to shed all the possible implications, also in terms of the articulation of democratic instruments, of the new blockchaiN technology. Blockchain technology is constantly evoked by Davide Casaleggio when it comes to online voting on the Rousseau platform used by M5s to consult members. "We are working on new projects. One above all to apply blockchain voting technologies: this will allow a distributed certification of all online voting and a more solid voting mechanism ", wrote in a comment on the Washington Post the son of the 5 star co-founder last March.

2.5 Beppe Grillo wants to solve the migrant emergency with the blockchain

In the last post on his blog, Beppe Grillo proposes his idea to solve the migrant emergency and to favor humanitarian aid: the Ethereum blockchain.

According to the founder of the 5-Star Movement, the use of cryptocurrency would allow huge savings and do not have intermediaries in the distribution of humanitarian aid.

The example brought by Grillo is that of the World Food Program Building Blocks, used in Zaatari, in Jordan, in the supermarket of a large center that houses about 75 thousand refugees. Here is the eye-pay, a system that allows you to pay through the recognition of the retina.

How it would work

In this way, the refugee would be registered at the entrance to the camp, by scanning the iris, and, at the time of payment, these would be immediately recognized without having to do anything else to settle their account.

With this system, aid has been distributed in food and money to over 100 thousand Syrian refugees in Jordan and, according to Grillo, could also be very useful for the approximately 150 thousand migrants who land each year in Italy.

The World Food Program has managed to save over 98% since it introduced the blockchain, completely eliminating any intermediary between the institution and the refugee. Can it have the same effects even in the specificity of the Italian situation? According to the 5 Stars leader, the cryptocurrency Ethereum would avoid not only the waste of money but also the speculation that is made against the people who arrive in our country, who would thus have direct access to aid.

In the same article, Grillo brings another example abroad, that of Finland where since 2015 a start up blockchain is active, which allows refugees to receive aid on an account that also allows to receive loans from trusted people. In this way, all data on the management of migrants are always public and, above all, traceable in every phase.

Identification through blockchain saves money but also collects data from asylum seekers and allows the migrant to have a sort of digital wallet with which to enter the world of work in the future. In this way, the employer will be able to deposit the pay in this portfolio in a secure manner, and it will be possible to identify the refugee at any time and to reconstruct the history of the refugee.

This is therefore Grillo's proposal. Now it will be up to the Government to evaluate its real feasibility in the Italian context and decide how to act.

2.6 World Food Program Building Blocks

Now we go into a supermarket, we take what we need from the shelves, we get to the cash desk, ... and nobody asks us for money.

We are asked instead to open our eyes well for a check of the retina, past which you can go out with the envelopes. Amazon go? No, a refugee camp!

Welcome to Zaatari in Jordan, in the supermarket of one of the largest refugee camps in the world hosting 75,000 people.

It is the "World Food Program Building Blocks" that allows paying through "eye-pay", a retina recognition system for the redistribution of humanitarian aid.

This is one of the first uses of the blockchain for humanitarian aid. By letting a machine scan its iris, the client / refugee confirmed his identity on a traditional UN database, which interrogated a variant of the Ethereum blockchain from the World Food Program (WFP) and settled the bill without opening the wallet.

This program facilitates WFP in distributing money and food aid to more than 100,000 Syrian refugees in Jordan. By the end of this year, the program will cover all 500,000 refugees in the country, many more than the approximately 150,000 who land each year in Italy, so it could be very useful for us too.

Building Blocks arises from the need to save money. WFP helps feed 80 million people around the world, but since 2009 the organization has moved from food distribution to money transfer to people in need of food. However, collaboration with local banks was causing huge waste: $ 1.3 billion in transaction fees were tens and tens of millions of dollars, all money that ended up in banks instead of refugees.

Thanks to the blockchain there was a reduction of 98% of these costs!

The savings are due to disintermediation, the ability to skip any intermediary between the WFP and the refugee.

But banks are not the only ones to speculate on immigrants. As we well know in our country, to enrich themselves with this business are also dishonest cooperatives that host immigrants.

Thanks to the blockchain we can eliminate the useless, expensive intermediaries and the rings of a long chain that creates spaces for malfeasance. No more rounds of money, no more favors of conniving politicians and local administrators, no more mafia that gains.

We must stop giving money to people who buy food when we can give food directly to people, and thanks to the blockchain we can do it in a transparent, safe and unalterable way.

An example? In Finland, starting in 2015, MONI, a start-up Blockchain, collaborates with the Finnish Immigration Service, providing each refugee in the country with a prepaid MasterCard supported by a digital identity number stored on a Blockchain. Even without the necessary passport to open a Finnish bank account, a MONI account allows refugees to receive benefits directly from the government. The system also allows refugees to get loans from people who know them and trust them, helping them to build rudimentary credit stories that could allow them to obtain institutional loans for the future.

The card is given to all asylum seekers in Finland, so that they use the money, without intermediaries and only for the purpose.

All data on the management of migrants will be public and traced, not editable and immediately verifiable.

But blockchain-based solutions do much more than save money and prevent theft.

They face a central problem in any humanitarian crisis: how to get people without government identity documents or a bank account into a financial and legal system, if these are the prerequisites for getting a job and living a safe life?

This technology based on a secure data retention system allows you to create a digital wallet, with the history of refugee transactions in the field, your government ID and access to financial accounts, all in one place.

With such a digital portfolio, when the migrant leaves the camp he can enter the world economy much more easily. A simple virtual wallet, to be communicated to the employer, in which to deposit his pay; from the same digital wallet a border agent can check his identity, which is confirmed by the United Nations, by the government of his country, and by other humanitarian institutions.

In addition to retina scanning, such a portfolio can be more easily accessed by the smartphone and allows the refugee - as anyone else - to bring their data from Syria to Jordan and beyond, by backing up online in an encrypted form.

This obviously eliminates the chaos of documents. Thanks to digital identity we can solve the problem of passports, permits and all the cards to obtain which, because of the bureaucracy, months are needed. But even the recognition of his refugee status becomes immediate.

The issue of repatriations would then be immediately managed in a much more effective way, because we will immediately know the story of the migrants and their origin.
Today we have 1.1 billion people who do not have a registry that can guarantee recognition and that do not allow the host countries to reconstruct the origin or protect the rights of these people.
This is a crucial issue and for this reason large companies like Microsoft and Accenture are moving in support of this project launched by the United Nations, called ID2020. The future is traced, it is up to us to make it a reality.

We therefore change paradigm. As long as we see immigration as a problem whose only solutions are walls and naval blocks, we will never really solve it. On the contrary, we will create more as we are seeing these days.
Solutions like those I talked about today allow us to face the challenges of our times with hope, improving the lives of millions of people, guaranteeing legality and security.
What I have told you already exists, as you can see from the stories mentioned. Technology can immediately improve the quality of life of all of us, reducing costs and destroying corruption.
The question is: is there a willingness to solve the problem of managing migrants, or do you prefer to feed it for personal gain? By making known to as many Italians as possible these solutions, we can once again bring about a major change based on information and the intelligent use of the network.

2.7 Santiago Siri, founder of Democracy Earth, speaks

In an increasingly global world, where societies are strongly interpenetrated with technological tools and the digital world, it is not uncommon to think that distributed accounting technologies can cross and transform various political, social and economic sectors around the world. globe.

Blockchain or distributed accounting technology (DLT) proposes a revolution in financial systems; but its application could render many of today's digital information management systems obsolete in the area of health, humanitarian aid, forensic investigations, energy distribution and even voting systems obsolete. In the latter

specific sector, the DLT tools could completely change the traditional paradigm of democracy; strengthening the properties of a safe, universal vote without coercion and embracing the possibility of a democracy without borders.

This goal is what the Democracy Earth Foundation, a non-profit organization that is after the construction of a transnational democratic system, from person to person, thanks to open source technologies and blockchain platforms.
Santiago Siri, founder of Democracy Earth, commented in an exclusive interview for CriptoNoticias the vision of this project, the possibilities of blockchain technology to revolutionize the traditional forms of voting and the purpose of the foundation in this matter. An interview that reveals the construction of a digital democracy and a globalized lifestyle.

The Democracy Earth Foundation is a project that has been constituted since 2015. Santiago Siri says that the initiative began to take shape when he was involved in the business start-ups of the American accelerator, Y Combinator, and he met activists, hackers, developers and entrepreneurs from all parts of the world.

Thanks to this experience, the idea of building a democracy without borders that works through decentralized and open source technologies has become more and more solid: Today the Democracy Earth Foundation is made up of a community of hackers and developers, counting nine members charged with communicating, to connect and develop a platform that operates at a transnational level politically and socially.
Siri emphasizes that this democratic tool would work under the idea of a network and would bet on a planetary jurisdiction, just like the Internet. Because of this, the founder makes it clear that digital voting aims to "make current political systems obsolete" and could even radically change the conception of the nation-state and territorial and governmental laws.

The first projects promoted by Santiago Siri and other members of Democrazia Terra in political and electoral matters were the DemocracyOS program and the Partido de la Red, a political group that was delighted in the Argentine Congress elections in 2013, proposing to voters who won a seat in Congress, the party representative voted the motions according to the results launched by the DemocracyOS platform, where every citizen of the city of Buenos Aires could make his position known.

DemocracyOS was developed in 2012 by Santiago Siri, Cristian Douce and Ricardo Rauch, originally conceived as a base platform that would inaugurate an Internet party, open source and a "political leg" that ensured a greater range of impact.

Siri emphasizes that this prototype has exceeded expectations, being translated into more than 18 languages, used in a wide variety of countries and appreciated by a large technological-civic community. Although net party failed to integrate its candidate for the legislature in the 2013 elections, DemocracyOS was used in 2014 by Congress to discuss with various citizens various laws introduced in the Buenos Aires sector.
"It was the first step in understanding how to connect the Internet to democracy," said the developer. However, Siri highlights that the project is now obsolete and Democracy of the Earth has focused on working on a new open source tool called Sovereign that is available on Github and operating in any blockchain.

The 0.1 version of Sovereign will be launched by the foundation very soon and will offer the public what the team calls a state of "liquid democracy", a new concept of democracy that could shake the foundations of current political and territorial concepts and to which we are so used to it

Liquid Democracy: Liquid democracy in the digital age, which will be provided by the sovereign instrument could be described as "a hybrid between direct and representative democracy", explains Santiago Siri ", where one can decide on certain issues or delegate the possibility of voting a friend, a contact or a family member to represent us on certain topics ".

This new concept aims to "build a new model that makes the old model obsolete", explained the developer. In the same way, by means of technology it is possible to contribute to respecting the rights of the voter and guaranteeing the security and secrecy of the vote.
Result of the image by non-secret vote .

Secret voting is a right that is commonly restricted by state threats, by buying votes or by illegally protected voting in countries with failed democracies. Source: La Prensa Thanks to the blockchain, the electoral systems could offer what Santiago Siri considers the "ideal vote", ie a vote that has three basic conditions. First, that the voter can vote secretly without being forced by society or a person with greater power, ensuring that votes freely. The second, that the vote can be verified, to check if it was

actually counted or if it has not been modified; and third, that the system should allow the vote on repeated occasions to avoid being threatened or forced.

Siri claims to rewrite or overwrite the vote several times gives the voter the opportunity to protect, for example, "someone requires you to show proof of your vote to be able to pay or force you to vote in a certain way", has He said.

The young entrepreneur emphasizes that these three attributes of the ideal vote are very difficult to implement in the physical and traditional models of electoral systems. But in digital technology there is the possibility to guarantee these characteristics, which is why the Democracy Earth Foundation is committed to blockchain platforms that offer cryptography from the root.

Likewise, another characteristic of digital democracy is that "it will be global or it will not be". The developer explains that because technologies are based on knowledge and information, its scope is not territorial, and therefore believes that, in the case of a democracy in the Internet age "must think in global terms, because it is impossible to circumscribe it in a certain space ".

Democrazia Terra proposes "to build a technology that sincere the digital interface with the political interface". This mission proposes its own digital transnational regions, where priority is given to networks and connections that have made humanity the success of computers and the Internet in our societies, notes the founder.

In cases of digital governability, Santiago Siri outlines the case of Facebook which, because of its proxy domains, governs a large part of the planet. He also discusses the impact of Twitter and other social networks in politics as presidents and government agencies use these means of communication to reach quickly and easily for the public, and vice versa; concluding that "the reality of networks influences the reality of countries".

For this reason, it does not seem strange that technology takes its part in politics and builds new forms of government that could bet in the future to govern a country or a region:

Without having to go very far into the future, the founder of the Democracy of the Earth notes that distributed accounting technologies in general "are sowing a new paradigm for our way of understanding governance and politics", and it is from this point that we can strengthen the society to continue to dynamize the current socio-political system.

"TECHNOLOGIES DO NOT ASK FOR PERMISSION"

"Technology is more subversive and faster to incorporate in everyday areas", says Santiago Siri when we asked if the company or technology are the ones that will change these democratic paradigms.

The founder decides that "technologies do not ask permission", which is the reason for everyone in less than a decade using Facebook and are generational gaps, the socio-economic those that separate social groups use technological tools. The reality is based on the fact that the young generations are strongly involved in technology and, therefore, also more connected to the world in global terms.

The development talks on social changes-politically left or right across the world are "pure vanity" and believes that technological innovation can break this political cycle that has brought great benefits to citizens.

In the same way, it is believed that technology is "human-scale biology", and that society is part of evolutionary processes that perpetuate the intelligence of man and life on earth through technological tools.

In consideration of this evolutionary scenario, the foundation also conceives democracy not as an absolute and unshakable idea, but as "a work in progress"; this is why this distributed and changing democracy could face the new dictatorial models, populism and radicalism.

By the very fact that technologies are not tools that ask for permission, Santiago Siri says that citizens who are under totalitarian regimes or non-democratic governments can conduct electoral activities just to have a connection to the Internet because digital democracy will not be recognized by a state but legitimized by the will of the civilians and the security of the platform in which everyone can contribute from anywhere in the world.

It is also noted that the cryptographic component that will operate in Sovereign blockchain can encrypt any information of the citizens, protecting the identity of individuals so that no state anti-intelligence apparatus to detect personal data. Siri believes that it is exactly in these characteristics where "the immense value of encrypted networks" is, since they can guarantee human rights.

The vision of Democrazia Terra is not constituted on the basis of the majority or of populism. "Places where different thinking is not respected in ideological terms, ethnic terms (...) are not democratic places," says the developer. Therefore, it is noted that liquid democracies have multiple mechanisms to achieve this ideal democracy where both can safeguard the rights of the majority and minority.

The digital space has no territorial jurisdiction is constantly expanding and can ensure that those who live as we live without being forced by any majority, Siri explains, citing the fork chain Ethereum, in which a minority has created its own node for not be subject to majority decision and thus satisfy its ideological position.

This non-territorial possibility could also allow for a better distribution of opportunities on a global level, a response to the problem of migration and the imbalance of wealth between developed and underdeveloped nations.

Santiago Siri comments that to a large extent the determination to live well or bad does not depend on the ability of citizens, but on the territory in which they were born; for this reason, he believes that the digital sphere could erase boundaries and compare scales.

Chapter 3
DIGITAL DEMOCRACY

3.1 digital democracy

On 25th April 1963, Joseph Licklider[7], JCR Licklider, wrote a memo, a memo addressed to the 'Members and Affiliates of the Intergalactic Computer Network'. Licklider himself was at a loss for what the whole enterprise of this memo was about. It was about - Licklider was trying to do something that no one else had done before. He wanted to get the very small number of incredibly expensive computers that he and his colleagues worked on to talk to each other. Now, he did not think this would be always useful. He writes in the memo: - he has quite a tactical turn of phrase - 'It will probably turn out, that only on rare occasions do all of the computers in the integrated system work in an integrated network.' It did not necessarily always be switched on. If they could do this, if they could make it work, think, he would be the readers of the memo, think of the size of the Intergalactic Computer Network we would have. We would have at least four large computers, perhaps six or eight small computers, and a great assortment of files and magnetic tape units. We could throw at collective problems. Licklider worked for the United States government. He worked for ARPA, the Advanced Research Projects Agency, there. And this memo, has as much else as being the origin of the Internet. But also here, at the very beginning, at the very birth of the Internet, Licklider and his colleagues knew that from the humble technical origin to a great number of other origins. He wrote, reflecting on this, sometime later, that would be in the public interest but also in the interest of giving the public itself to the decision-making process that will shape their future. They were connected to the Internet, they knew that if you connected computers, you would change the way that human beings connected with each other. You could change how politics works. You could change how power works. In other words, the origin of the Internet has been

[7] Joseph Carl Robnett Licklider (/ˈlɪklaɪdər/; March 11, 1915 – June 26, 1990), known simply as J. C. R. or "Lick", was an American psychologist and computer scientist who is considered one of the most important figures in computer science and general computing history.
He is particularly remembered for being one of the first to foresee modern-style interactive computing and its application to all manner of activities; and also as an Internet pioneer with an early vision of a worldwide computer network long before it was built. He did much to initiate this by funding research which led to much of it, including today's canonical graphical user interface, and the ARPANET, the direct predecessor to the Internet.
He has been called "computing's Johnny Appleseed", for planting the seeds of computing in the digital age; Robert Taylor, founder of Xerox PARC's Computer Science Laboratory and Digital Equipment Corporation's Systems Research Center, noted that "most of the significant advances in computer technology—including the work that my group did at Xerox PARC—were simply extrapolations of Lick's vision. They were not really new visions of their own. So he was really the father of it all".

wrapped up with another source as well. Now, of course, we are all members of Licklider's Intergalactic Computer Network. The Internet has spread further and more and more profoundly than even Licklider could possibly have imagined. So, has his vision as true? Has the rise of the Internet changed how politics works? Has it given the public to say that they affect their lives? Has it changed our democracy? It is really, really, really has not. It is incredible how the Internet has changed so many different parts of our lives. From where we shop, to how we fall into love. But it's barely changed at all our role as citizens; it's barely changed to all the ways we can become involved in the decision-making process; it's barely changed at all of our system of democracy. I know, the rise of the Internet, I know, has stubbornly resisted the future beckoning that Licklider pointed towards. Rather than making more powerful citizens, the Internet firstly has made us just another target of just another advertising campaign. David Cameron, performed in a debate. Matt Hancock, an MP: 'Whoa! What a strong commanding performance from David Cameron tonight. ' The Conservative main Twitter account: 'Commanding performance from the PM tonight.' Ed Vaizey, MP, at Conservative MP: 'Strong and commanding performance from David Cameron tonight.' The Press Office: 'Strong commanding performance from David Cameron.' Jim Messina, the Conservative pollster: 'Strong commanding performance from David Cameron.' The Tory Treasury, can you guess what that one is? 'Strong commanding performance.' Rather let us know what they really think, politicians will often use the same empty soundbites, the same message disciplines around the Internet. And when we jump into digital politics, we also jump into digital tribes.

This is our Twitter verse that we created for the UK general election. And every day, every day in this galaxy, it is one of thousands of thousands of different Twitter accounts that jumped into that rolling, sometimes very rude, sometimes very interesting. And the location of every star in the sky is absolutely no accident at all. Those who are tended to re-tweet each other, or to follow each other, those who are close to each other. And those who did not stay further apart. We are going to follow and re-tweet and share the information we have agreed with, of course, we jumped into digital tribes. There's a Labor tribe, there's a Conservative tribe, there's a Scottish conversation happening entirely unto itself. Each of these an echo chamber; each of these is a washing machine of information, of whirling information, sending back your own world to you in a thousand different ways; each basically confirming your basic beliefs in the first place. Descent into abuse, and when there is disagreement. These

are the favorite swearwords of over 100,000 people sending to deluge of abuse into politicians. They've had enough of the campaign, and they wanted to tell them that. These are their favorite words that they used. They politicians themselves, tired, ragged from the campaign, anxious about potentially losing their job. Now, all of this is political. All of this is profoundly changing the way that are being fought. This is the way that power is won. But none of this is democratic. None of this is actually the way in which decisions are made. People of those decisions. I know, I do, Licklider's vision of an Internet that actually creates more powerful citizens, that has not yet been achieved. Now, democracy. Democracy is a lofty idea. It's one of a very few ideas that almost everyone in this room would agree with. But like the loftiest of ideas, democracy always produces a train of practical challenges. How do you really put the people in charge? What systems do you have to create? What balances do you have to strike? What boundaries do you have to police? What powers do you have to create? The devil of democracy has always been in the detail. Our Lady in 1649. The English Civil War was just over, the smell of gunpowder was still hanging in the air, our headless king, Charles I, was still lying on the scaffold. We badly needed a form of democracy that we can make work. And we faced a huge, huge problem. Too many people spread out too much to country, too busy, too ungovernable, to directly rule. We needed something else. Henry Parker, now often forgotten, he had the answer to this. And in doing so, he authored a system of democracy that will be familiar to everyone in this room. How we understand democracy today. In this pamphlet, I know innocuously titled 'Observations', he reasoned that people could be sovereign, could rule, if a parliament was. Parliament was what you needed, - literally to re-present - the nation, but small, all in one room, able to debate, able to make decisions. People could rule if they elected to rule on their behalf. And, of course, this idea of parliamentary democracy, has spread throughout the world. It's how to dominate what democracy means to us all. It was a way of making democracy for large and modern countries. It was a way that we could achieve democracy when we needed it. People worried about democracy at the time. One of Parker's contemporaries, another democrat, called John Lilburne, warned Parker, and he warned parliament. He said: 'We might just have done it without us, had we thought it convenient.' They saw parliament as a very dangerous means to a very worthy end. John Lilburne was from the origin of parliamentary democracy to today. Because of the rise of parliaments, we've seen the rise of lots of other things as well. We've seen the rise in political

parties, big, slick, professional operations, vote-winning machines. But they're factories, electoral factories, that have to be funded.

We've seen the rise of big money politics - donations. Sometimes shadowy, sometimes not. But all going to fund, not democracy itself, but the parties that live within it. And these parties, increasingly, are staffed by professional politicians, people that have chosen from early age in their careers that they want to be a politician, rather than being a doctor, rather than being an accountant. But who, increasingly, actually don't represent or reflect the societies they are drawn from in either economic or social terms. And these professional politicians are often drawn now from political dynasties, families that pass on the connections, the networks, the wherewithal, the commonest, to even think that you can be a politician in the first place. And all of this means, something very, very serious indeed. Rather than being the routine participants in democracy, people are the consumers of it. They are a market that political parties have to sell a product to every few years come election time. And it is increasingly a product that fewer and fewer people are buying. Never before have we felt so alienated from our political system. Never before have we felt that parliament so little speaks on our behalf. Never before have we felt so distant from either our politics or the decisions that are made on our behalf. In the UK, 80% of people don't trust their political leaders to tell the truth. Here in Greece, 88% don't trust their political leaders. Indeed, my host was surprised the number wasn't even higher. Disaffection, scepticism, cynicism in politics are all on the rise. In general, electoral turnout was falling, party political membership is falling, people are turning to other ways to try and improve their society. All of this,, is deeply, deeply serious indeed. Now, this was never part of the plan. What Licklider, was imagining at the very birth of the Internet was a return to another kind of democracy before parliaments. A kind of democracy which traces its origins all the way back to here, to Greece, to Athens, to the ancient assembly. Why Licklider is a visionary, and what is true today, is that for the first time in perhaps centuries, the Internet allows genuine alternatives to parliamentary democracy to become possible. The practical difficulties that were faced when we first invented the system of parliamentary democracy, no longer are quite so difficult anymore. And this is what is going to happen next. people are going to begin to use the Internet, they are going to begin to use technology - they already are, to invent alternatives to parliamentary democracy and take power away from parliaments and from political parties and find ways of safely transferring that back to the people. And the first

alternative is direct democracy. A democracy without delegates, without parliaments, where people vote constantly and directly in the decisions that affect them. The sheer number of people and their distance apart, once such practical difficulties, such difficult obstacles to overcome in the 1640s, now no longer matter that much anymore? And there are already a flood of platforms, direct, digital, democratic platforms that are beginning to allow this to happen. Now, many of them aren't used very much, and it's difficult to know how to use this in a way which works and is safe. But demand for this kind of direct democracy will continue to grow. Soner or later, we will see these kind of technologies plugged into the formal decision-making process. But the Internet hasn't made any of us less busy, and so we also have liquid democracy, where votes can travel around in a system as easily as information or money does. You might give your vote on defence policy to someone that you trust, you might give your votes on economic issues to someone else, and others might give their votes to you, to vote on an issue that you passionately care about, that you are active within. All of these votes circulating around in a system fluidly, constantly, dynamically. Votes that can be revoked at any time. And how's this for a final radical idea? Bitcoin democracy. A democracy without not only parliaments, but also without states themselves. Bitcoin, you might have heard of, uses very clever encryption technology to allow the middleman to be cut out of networks. Technology that allows networks to come together, where everyone makes sure that everyone else is following the rules. Well, this technology today is being used to allow people to become citizens of virtual nations. Nations with citizenship, with land rights, with insurance, even with embassies; but democracies which are outside of the geographic space, democracies which are most fully, most perfectly within Licklider's Intergalactic Computer Network. Now, none of this is going to be easy.

Re-inventing democracy is not easy; it's very difficult. We don't know which of these is going to work, we don't know how to do this in a way which fits with the systems which we currently have. The systems will be open to abuse, they'll be subject to manipulation. But what is clear, is that parliamentary democracy is no longer our only answer. It is no longer the only way of making democracy work. It is no longer the only way of expressing the will of the people. And from Licklider's memo to today, is what the Internet, or the best of the Internet, has always been about. It's always been about re-invention. It's always been about innovation. It's always been about trying things which are new. And it's always been about never accepting the status quo. Never

accepting the legacies which we inherit. And in politics, perhaps more than in any other parts of our lives, it's time to try something new, it's time to have a new origin.

3.2 The constitutional field of digital democracy

In its strongest form, digital democracy is possible in the constitutional systems of countries such as Switzerland, both at federal and local level, and the United States, at the local level, where the framework of representative democracy is flanked by institutions of popular initiative, like the legislative one, or in which there is a shared legislative function between the elective legislative assemblies and the people.

In Italy since 2005 the autograph signature has been equated with the digital signature and some decrees have included numerous digital rights of the citizen, but this has never been followed by any practical experimentation at the national level. The only examples are at the local level, where they have built numerous web portals on participation for the collection of petitions, petitions or proposals.

The first practical experiences show that e-democracy can be used to improve the bureaucracy related to voting (electronic voting) and decision-making processes related to popular deliberation.

Germany

Germany is one of the leading countries in e-democracy, partly because the local political world has immediately seen in this the possibility of interacting and loyalizing the electorate, partly due to a democratic non-delegative cultural trend, typical of strong countries. Calvinist culture.

The best known experience is that of the German Pirate Party. Born in 2006, it has gradually developed, always promoting the themes of digital citizenship and direct democracy. Wishing to acquire an IT tool for managing internal party proposals, it develops and adopts a SW / rating platform: the LiquidFeedback software, which implements the principles of liquid democracy. The platform actually constitutes a permanent and virtual assembly, where all the initiatives are developed and put to the vote among all the members of the party. The initiatives that pass the scrutiny of the assembly are carried out by their representatives, elected according to the classical modalities of the German institutional system.

To cite other initiatives concerning the implementation of e-democracy, the adoption by the German Social Democratic Party of the Adhocracy deliberative platform.

Italy

In 2004 the Ministry for Innovation and Technologies co-financed limited projects for the development of digital citizenship and citizen participation in territorial governance. Most of these experiences have been resolved in the dissemination of institutional websites, with (at most) forums for public discussion.

Meanwhile, together with "institutional" initiatives, "private" projects (often amateur) have begun to emerge, with the aim of creating software platforms for the development of direct and participated democracy.

The Beppe Grillo 5 Star Movement includes the concept of e-democracy in its program.

In June 2013 some MPs from the Democratic Party, the Civic Choice and the Left Ecology and Freedom joined a liquid-backed e-democracy platform promoted by Senator PD Laura Puppato. The platform is no longer active in 2015. Also in 2013, an advisory referendum with a special digital urn was held in Salento for the first time in Italy.

Estonia

Estonia holds a record in this field, in fact it was the first country in the world to experiment with electronic voting, all this since 2005 [3]. Estonian citizens can vote on the internet both for elections and for referendums; in July 2013, the government began to distribute the sources of its e-Voting system, thus making it open-source

United States

Also in the US e-democracy has aroused a lot of interest, as a branch of development of information technology, always considered strategic.

Instead, the reaction at the institutional level turned out to be rather cold. The reasons are basically two:

• the weight of the lobbies on political management;

• traditional electoral mechanisms, which already impose constant contact / confrontation / consensus with their voters / citizens to institutional representatives.

Nonetheless, several projects have been developed, to name a few:

• E-Democracy.org, an association of citizens born in the late nineties in Minnesota, capable of directing local elections and subsequent administrative choices through debate and pressure;

• MixedInk, a platform activated by the White House in order to open up to citizens' proposals (open government);
• White House 2, an open source private initiative that has led to the creation of a platform to implement shared programs and proposals; was promoted during the first election campaign of President Barack Obama in 2008, and remained active until 2010.

Iceland

An ambitious project is taking place in Iceland, where, through a platform derived from White House 2, they are trying to rewrite the national Constitution thanks to the contribution of all citizens. The process of constitutional revision, however, due to the accused approval process of the draft of the new constitution and the results of the last political elections, seems to have failed.

Application areas [edit

As is evident, the natural scope of application of e-democracy is the political one; this does not mean that the same principles can be applied to non-political realities.

If e-democracy is generally a way of managing a "community", the latter can be of various dimensions and characteristics; the essential thing is that, a priori, it has been defined that the "community" will have "democratic management" among its members.

Political field

The "community" interested in the application of the principles of e-democracy, conceptually has no limits of dimensions: it can be a neighborhood, a municipality, a province, a nation or a confederation. Therefore it is possible to think of a modest "collaborative management" between inhabitants of a district and municipal institutional representatives, as a world direct democracy is conceivably conceivable. Obviously, more extreme realizations are still far beyond being conceived.

As an example, there is the PartecipaMi.it initiative created to create a meeting place between the Milanese citizens and their administrators (based on the OpenDCN platform). At the opposite end there is the already mentioned Icelandic initiative, where all the citizens of a nation are invited to rewrite their Constitution.

The "community" interested in the application of the principles of e-democracy may not include all the citizens, but only people who share common ideas and who want to develop them among themselves in a shared way. This is the typical case of political parties or movements. In this case, the members of the political force (usually the

members) use the software platforms to jointly create political addresses, programs, laws, organize events and manage internal candidacies. The result is then carried out by their representatives at the institutional headquarters, according to the laws and regulations of the country they belong to. The most famous example is the aforementioned German Pirate Party.

It is important to underline that "democratic" principles are applied only among the members of the community who access the platform for discussion and deliberation. This underlines that the adoption of an instrument of democratic participation by a community does not guarantee that it actually has democratic tendencies.

Management field

As can be guessed from the previous paragraph, the "communities" interested in sharing common ideas (and interests), and who want to develop them among themselves in a shared way, can be very many. They can be small communities of a few hundred people (such as clubs or cultural associations), as can be thousands of people (such as national trade associations).

In this field, we are still at the beginning, but some initiatives are being developed (eg in the trade union field or for consultation within specific trade associations).

Environmental field

In the environmental field, Europe took the first steps towards the implementation of participatory principles through the agreement signed in Århus, Denmark, on 25 June 1998. Ratified by Italy with the law of 16 March 2001, n. 108, the Convention requires governments to intervene in three sectors: to guarantee the widest possible audience (natural or legal persons, associations, groups or organizations) the right of access to environmental information held by the Community institutions and bodies; to provide that information on the environment is made available to the public through easily accessible electronic databases; provide for public participation in the drawing up of plans and programs on the environment by the Community.

Italy and the environmental field

Italy has, through the Ministry of the Environment, presented in May 2005 the first report on the application of the Convention and in December 2007 published a first update, in the meantime implementing the EU Environmental Assessment Directive 2001/42 / EC Strategic, known as VAS, including a public consultation phase. The directive, accepted by the Italian State with the Legislative Decree 3 April 2006, n.

162, was also made its own by the regions, often tracing the process of the Community SEA.

Chapter 4
BLOCKCHAIN IS NOT A DEMOCRACY

4.1 Oligopoly

When we talk about bitcoins we always highlight the positive aspects of this cryptomino and the countless advantages that it, like the other altcoins, should bring to the world economy (for now only to the pockets of miners and exchanges).

One of the most disturbing aspects in the world of cryptocurrencies is the analysis of the distribution of wealth.

In order to analyze this phenomenon we have used known models for traditional coins, but they have not proved to be able to offer a correct overview and to express exactly what today is the distribution of these cryptomonetes.

So we went to try to analyze the relationship between addresses in the blockchain and the content in coins of the same.

Bitcoin distribution

Balance	Addresses	% Addresses (Total)	Coins	$USD	% Coins (Total)
0 - 0.001	11592383	59.26% (100%)	2,117 BTC	9,266,052 USD	0.01% (100%)
0.001 - 0.01	3411340	17.44% (40.74%)	13,137 BTC	57,511,349 USD	0.08% (99.99%)
0.01 - 0.1	2691686	13.76% (23.3%)	84,013 BTC	367,782,667 USD	0.51% (99.91%)
0.1 - 1	1242950	6.35% (9.54%)	406,519 BTC	1,779,615,830 USD	2.46% (99.4%)
1 - 10	474625	2.43% (3.19%)	1,295,163 BTC	5,669,831,946 USD	7.82% (96.94%)
10 - 100	130891	0.67% (0.76%)	4,355,859 BTC	19,068,638,578 USD	26.31% (89.12%)
100 - 1,000	16591	0.08% (0.09%)	3,858,277 BTC	16,890,374,679 USD	23.31% (62.81%)
1,000 - 10,000	1636	0.01% (0.01%)	3,528,573 BTC	15,447,026,135 USD	21.32% (39.5%)
10,000 - 100,000	119	0% (0%)	2,890,111 BTC	12,652,034,161 USD	17.46% (18.18%)
100,000 - 1,000,000	1	0% (0%)	119,338 BTC	522,427,876 USD	0.72% (0.72%)

Addresses richer than	1 USD	100 USD	1,000 USD	10,000 USD
#	10,927,676	3,162,846	1,275,923	339,320

What emerges from the analysis is that probably bitcoin is the least democratic currency in the world, a true oligopoly of the great whales (known as Whales in the jargon of insiders). This statement is based on the distribution of coins in users' portfolios, a distribution that shows that the vast majority of virtual currencies are

confined to digital portfolios of a small percentage of users, it is said that 40% of the bitcoins are in the hands of only 1000 total people.

The numbers, however, must be taken with great flexibility because the underlying problem of the distribution models so far applied is that they do not correctly analyze the relationship that exists between number of users, number of wallets and number of addresses.

All previous models, in fact, are based on a 1: 1: 1 ratio, but it is unlikely that each user has only one portfolio with only one bitcoin address. It is more probable, on the contrary, that a single user has more than one wallet, at least more addresses and to make things more complex there are the exchange addresses that clearly act as accumulators and the bitcoins lost forever.

Even by applying new distribution model of bitcoins, which try to take into account the complexity of the phenomena, the results are not much better.

The result of the application of the new model shows that 98.3% of the bitcoins are owned by 30% of the wealthiest users, while 70% of the poorest users have the remaining 1.7% of the total amount of encryption available.

By limiting themselves to these percentages one could say that bitcoin could be the least democratic currency in the world. There is another data to consider, however, that is the share of bitcoins that allows to pass from 70% of the poorest users to 30% of the richest users: this share is only 0.153 BTC, a rather low threshold.

The low threshold makes us understand that the percentage of the distribution must be taken with the pliers, since there are many users who own only an infinitesimal bitcoin fraction, probably derived from the faucet and that it is extremely probable that these private keys have been lost having regard to the low value contained therein.

What is certain is that the distribution of bitcoins leaves us very perplexed.

Luck in the early days has rewarded the small miners (when they bitinoin bitcoins with domestic PCs ...) and nothing less than the former customers of Silk Road ... the ebay of the deep web closed for several years because of illegal activities (especially related to the distribution of drugs) who have come into contact with Bitcoin almost immediately and have been able in many cases to understand the scope before the others.

Chapter 5
CONCLUSION

5.1 Bitcoin and blockchain conclusion

Bitcoin is an expectation, and therefore its evolution depends on being able to affirm itself globally and clarify doubts about its value as a refuge.

Bitcoin is a coin startup. The initial appeal is undoubted. A means of payment in which states can not interfere in the money supply, where it is not possible to create false money not supported by savings and where one can 'escape' and take refuge from the assault on the saver, which is the increasing financial repression imposed from governments and central banks. Well, but the doubts come when the 'shelter' is virtual, and therefore always subject to cyber attacks. Furthermore, history makes one fear the confiscatory reaction of the states when it reaches - if it does - a "dangerously high" implementation.

At the moment, Bitcoin is not a currency, it is an exchange network. A financial resource similar to a future or a derivative. Unlike legal offers, no one is obliged to accept it as a means of payment. If you want, something like barter, accept as payment for their goods and services that you consider valuable, a watch, a car or Bitcoin, and values its scarcity, future demand and quality to the possibility of trading for other currencies, assets or services in the future.

As a resource of 'storage value', it is relatively similar to gold, but virtual. It is therefore subject to extreme volatility and to a potential for supply and demand that is difficult to estimate.

But it can not be equated with physical gold, not to have a history of transactions in times of extreme crisis. In other words, everyone knows that in the face of a global catastrophe, gold has been traded for goods and services. No one yet knows how to 'store virtual value'.

Bitcoin is the beginning of something big: a currency without a government, something necessary and imperative -

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increasing financial repression imposed by governments and central banks. Well, but the doubts come to me when the 'shelter' is virtual, and therefore always subject to cyber attacks. Furthermore, history makes me fear the confiscatory reaction of states when it reaches - if it does - a "dangerously high" implementation.

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To be a currency, it must travel a lot of implementation terrain, if it is legal tender, and that it is accepted globally for large commercial transactions.

According to Merrill Lynch, if we assume that Bitcoin becomes a general means of payment in transfers and e-commerce, an addition to its assessment could come from the addition:

The average capitalization of consolidated media such as Western Union, MoneyGram and Euronet, about 4,500 million dollars.

The expectation of accumulating 10% of global e-commerce, which can fluctuate aggressively, and which the US investment bank estimates at a maximum of 5,000 million dollars.

In total, around 9,500 million capitalization, ie lower than the market level, of over 13,000 million dollars.

To reach $ 5,000 million, Merrill Lynch assumes that Bitcoin would accumulate 10% of online residential sales in the United States, and extrapolates the rest of the world. In the United States the total e-commerce is a market of 224,000 million dollars in the domestic sector (households) represents about 10,000 million, of which 10% would be potentially Bitcoin. If we assume that the United States is almost 20% of world GDP

and a similar degree of penetration of both online commerce, like Bitcoin in the world, analysts achieve the figure of 5,000 million capitalization. However, according to my analysis, this number can be much higher if you include companies starting to use aggressive Bitcoin. It would multiply by 10, up to 50,000 million, assuming a penetration similar to other electronic means of payment.

An assessment indicates that Bitcoin has grown by almost 30% above its core, and the other is underestimated at a rate of over 420%.

This is the dilemma of Bitcoin analyze, understand the ability to penetrate the markets today are huge and where you can generate a space for payment without falling into the risks of:

- Assume a threat to states and their control over the currency and the money supply. In a world where central banks and governments have taken financial repression as a last resort to support excessive spending structures and loans, the use of legislation to attack any means of threat should not be underestimated as their main weapon of economic policy. Bitcoin, even in the middle of the field of evaluation, would be far from becoming a 'problem' of that kind.

Confiscation of resources Roosevelt's interventionist style with gold and other paradigms of government actions to keep investors' savings in "safe haven" in the face of the crisis, the constant devaluation of the state currency or the manipulation of interest rates for the low The fact of being a virtual resource makes confiscation very difficult, but unfortunately it is not impossible.

For it to be a bubble, the global e-commerce to which it can aspire should be much lower than the current maximum capitalization, ie that the perception of demand is not plausible in a moderately conservative analysis. This risk does not occur when global online sales trends are analyzed.

Moreover, to be a bubble, it should satisfy the need to have a growing and accelerated bid above the demand. Bitcoin's offer is limited, as shown in the chart below.

To be a Ponzi scheme, you should respect:

That the profitability granted to the owners of Bitcoin is "guaranteed" and that it is subtracted from the additional shares purchased by the new investors, or to increase only the base of "new investors". And this is not the case, the value of Bitcoin is fixed by a demand and an offer generated by a multitude of buyers and sellers.

That the price dynamics are uniform, opaque, controlled by a single manager and false sensations of "security", that is, only "rise" until they cease to fall into the ignorance

of the pyramid scheme and explode. Bitcoin has undergone enormous declines and strong increases, behaving more like an asset in which it is monitoring every day the potential demand for a very specific offer.

Therefore, it does not even look like a Ponzi scheme.

Bitcoin is really, for the purposes of evaluation, a technological startup. Its value will be shown only when doubts about its implementation as a combination of means of payment and refuge value begin to dissipate.

To get the potential and the penetration necessary to justify much higher evaluations, there are two things to analyze: - Just the huge volatility, with increases of 30-40% respectively and similar falls in a day make it difficult for large companies and mass consumer acceptance, or quickly, this Bitcoin. That is, volatility itself prevents its penetration into the mass market. To be a universally accepted means of payment, volatility levels similar to the established currencies must be indicated. This is why I say that it is not yet a currency, but a volatile financial resource.

The slowness and the quality of the exchange. Bitcoin has a great advantage, supply is limited and to avoid manipulation by a bank or state, there is no centralized validation system (compensation) then analyzed and delayed transactions, to avoid double counting a purchase-sale. Well, for this reason it is necessary to wait fifty minutes before a payment is confirmed, which greatly limits the massive implementation in companies and in commerce. On the other hand, many of Bitcoin exchange servers have been "hacked". One of those change banks, Bitcoinica, lost 18,547 bitcoins after a cyber attack. BIPS in Europe lost 1.195 as a result of a security problem.

As soon as the transactions are immediate, secure and not subject to huge volatility, Bitcoin's valuation may start to make sense.

There are still many doubts to cancel, and if you have difficulty understanding the phenomenon, it is better to avoid, do not ride a wave that depends on variables with huge fluctuations. A server does not have Bitcoin. I have always thought that if something has a potential of a billion zeros, I leave the first 100% to those who accept the risk that is given by "experiment" to "solid implementation".

What I find interesting about Bitcoin is that there are more and more people aware and looking for ways to get out of the vicious circle of financial repression and currency devaluation. The competition of any means of free payment can only be positive. And also, as in any free environment, it can lead to sanity to be restored in the race to

destroy the coins we want to sell as social and this is nothing but the massive transfer of income from savers to debt holders.

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