

BLOCKCHAIN OF CRYPTOCURRENCY AS AN ECONOMIC-FINANCIAL TOOL IN THE SERVICE OF BIOPOWER

BLOCKCHAIN DAS CRIPTOMOEDAS COMO FERRAMENTA ECONÔMICO-FINANCEIRA A SERVIÇO DO BIOPODER

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ABSTRACT

The development of *blockchain technology* has brought great challenges to the field of legal sciences, especially regarding the need to regulate its use. The objective of this study is to analyze how blockchain, specifically used in cryptocurrencies, can be instrumentalized by biopower to influence the economic-financial order. In the search to fulfill the general objective traced, from a documentary research, exploratory and analytical-descriptive, adopting the deductive method, the article will present brief notes on the functioning of the blockchain technology to, then discuss its relationship to Foucault's governmentality and its regulation as security devices. In the end, it is argued that the regulation of the use of blockchain in cryptocurrencies may be the appropriate way for the full fulfillment of constitutional precepts related to the economic order.

Key words: Biopolitics. Economic Order. Technology. *Blockchain*. Cryptocurrencies.

RESUMO

O desenvolvimento da tecnologia de *blockchain* tem trazido grandes desafios para o campo das ciências jurídicas, em especial quanto à necessidade de regulamentação de seu uso. O objetivo do presente trabalho é analisar como o *blockchain*, utilizado especificamente nas criptomoedas, pode ser instrumentalizado pelo biopoder para influenciar na ordem econômico-financeira. Na busca de cumprir o objetivo geral traçado, a partir de uma pesquisa documental, de cunho exploratório e analítico-descritiva, adotando o método dedutivo, o artigo apresentará breves anotações sobre o funcionamento da tecnologia *blockchain* para, em seguida, discutir sobre a sua relação com a governamentalidade de Foucault e sua regulamentação como

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How to cite this article/Como citar esse artigo:

DIAS, Jefferson Aparecido; MEDEIROS, Bruno Azzolin; RAMOS JÚNIOR, Galdino Luiz. *Blockchain of cryptocurrency as an economic-financial tool in the service of biopower*. Revista Meritum, Belo Horizonte, vol. 15, n. 3, p. 92-106, Sep./Dec. 2020. DOI: <https://doi.org/10.46560/meritum.v15i3.8008>.

dispositivos de segurança. Ao final, defende-se que a regulamentação do uso de blockchain em criptomoedas pode ser o caminho adequado para o pleno cumprimento dos preceitos constitucionais relacionados à ordem econômica.

PALAVRAS-CHAVE: Biopolítica. Ordem Econômica. Tecnologia. Blockchain. Criptomoedas.

1 INTRODUCTION

Technological developments and societal transformations have always brought great challenges to the legal sciences since, by innovating in the factual field, ultimately require legislators and enforcers of the deep right to examine what legal and normative treatment will be accorded to them. If in the past these factual innovations occurred in a spaced and relatively slow way, in recent years they have acquired an incredible speed, amplifying the challenges in the legal world.

Among such innovations, it is interesting for this article the emergence of blockchain, *which can* be conceptualized as a digital chain replicated blocks of public information and freely fed, successively encoded and decoded in cryptographic formulations that would be so complex as to ensure the data chained safe transit. It is P2P communication technology (peer to peer), *marked* by great reliability in the transmission of encrypted information. Among its many applications, one that has gained the most prominence is related to cryptocurrencies, such as bitcoin.

At first, the use of blockchain *in cryptocurrencies* conveys the feeling that a parallel financial system and economic order are *being created, independent of legal and official systems. This sensation is intensified in the face of the lack of information on the subject, because most people do not even have enough knowledge to understand the characteristics of the cryptographic technology, its functioning and applications. Moreover, blockchain is conceived, in a way that seems to us to be mistaken, as a kind of resistance to the neoliberal capitalist regime, as if it were something neutral. All these uncertainties in relation to the theme justify its analysis in a more detailed way, in particular to verify whether initial impressions about the use of blockchain in cryptocurrencies can really be confirmed or should be reinterpreted.*

In this sense, the problem that is intended to be analyzed in this article is whether the use of blockchain *in cryptocurrencies should* be regulated, either in a specific way or by the application, by analogy, of general rules applicable to other financial assets. The hypothesis that will be maintained is that the principles enshrined by the Federal Constitution of 1988 for the economic order do not allow the full adoption of a neoliberal economic model, which is why it would not be possible to use blockchain in unregulated cryptocurrencies.

Thus, from a documentary research, exploratory and analytical-descriptive, adopting the deductive method, the general objective is to analyze how the blockchain, used *specifically in* cryptocurrencies, may be instrumentalized by biopower to influence the economic-financial order.

To achieve its general objective, the work will start from a brief presentation of notes on the functioning of the *blockchain in order* to explain *how it is used by cryptocurrencies, to,*

later, correlate it to Michel Foucault's liberal governmentality and biopower, demonstrating that, unlike being a tool of resistance, the use of blockchain by cryptocurrencies can be conceived as a new neoliberal prudencialism. Finally, the article is dedicated to demonstrating that both the blockchain and its regulation can be designed as security devices to influence the economic-financial order.

2 “BLOCKCHAIN”: BRIEF NOTES ON HOW IT WORKS

At first, we should emphasize which characteristics draw the most attention to the paradigm that we propose from this very new mechanism and that are, in our view, capable of challenging social conformation. Currently there is great media hype projected on the theme, generating great conceptual confusion. The *blockchain*, “current block technology” or just “block technology” has been around for longer than anyone thinks, from a message signed and distributed by e-mail under the pseudonym Satoshi Nakamoto in 2009 (PIRES, 2016, p. 14).

However, since its inception, the use of the system has only become known when it served as the basis for the implementation of the so-called digital coins (unmistakable with the block being only the most famous means of its use). As revealed by Timoteo Pimenta Pires (2016, p. 26):⁴

Blockchain is an immutable, public, and distributed chain of records. Jail because the records are carefully chained to each other through public keys, entrances and exits. Immutable because once the record is inserted into the string, it can no longer be changed. Public because the only condition necessary for a citizen to have access to blockchain records is that he has access to the internet, and distributed because this chain of record is not stored on a single central server, on the contrary, it is replicated on millions of machines distributed all over the world and no company or individual can claim ownership of these records

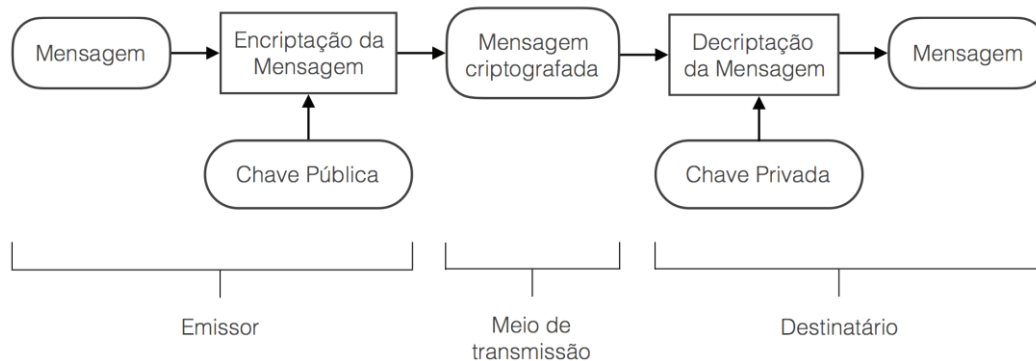
There are technical conditions to make the system viable in this way. The basic tool for its operationalization is already widely known in the legal practice: the digital signature. Despite all the complexity of the system, even so, the port of entry and exit of the information that are released in the system consists in the identification of its users through the electronic rubric Otabilizada, so common nowadays in forensic practice.

The mechanism is simple. The initial user, carrying a private key, launches an encrypted information, that is, written with unique data that can only be read (decrypted) by another key (usually public when it comes to information covered by the Brazilian Public Key Infrastructure). The information, in turn, when arriving at the public key can only be revealed by those who hold another private key that again decodes the public key, recovering then the signature

4 É muito comum confundir o *blockchain* com a tecnologia das moedas digitais, quando na realidade são coisas diversas. A moeda digital apenas adjunta o sistema *blockchain* como base eficiente para realizar suas operações *peer-to-peer* (P2P), ou seja: assegurar e tornar possível de forma segura que o portador da moeda realize seu câmbio, pessoa a pessoa, afastando-se da lógica distributiva tradicional servidor-terminal. Os usuários se conectam em nós (entre si) por um emaranhado de terminais eletrônicos.

released by the first user at the beginning of the process. The figure below demonstrates how public key cryptography works, the first step to blockchain development:

Figure 1: Public Key Cryptography



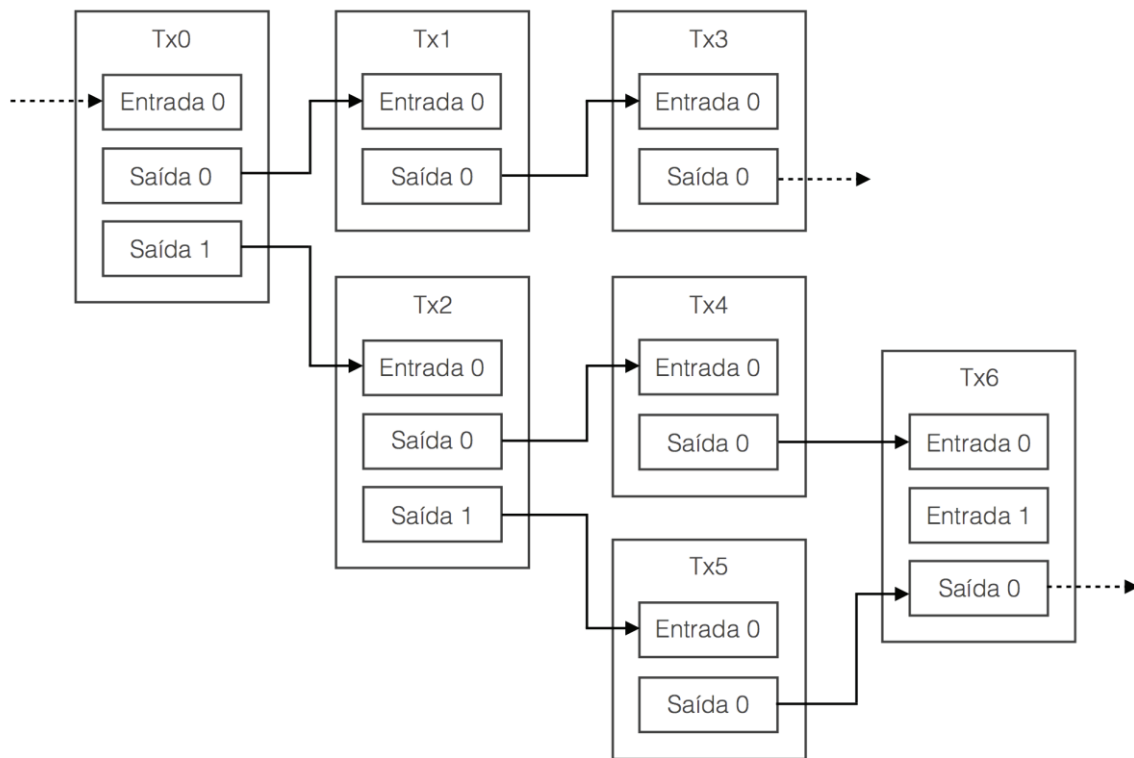
Source: PIRES, 2016, p. 17

As you can see, you can't release information into the system without authorship. And beyond authorship, what is desired is to verify the authenticity of the signature, a task that the digital signature fulfills satisfactorily, as already revealed in its forensic use and in other means. It does not matter, on the other hand, the secrecy or protection of the information circulating through the block. If the signature affixed by the issuer is authenticated, the information released is essentially public and can be accessed by all.

But here lies a relevant differentiation with the practice of digital signatures in conventional media. In the *blockchain universe*, the use of digital signature is tremendously more complex. While in the common electronic media, the objective is to verify now the signature of the issuer, sometimes (optional and possibly) the signature of the recipient, in the blockchain the checks of signatures occur in frenetic regime (typical of digital speed) making blockchain an even more reliable P2P (peer to peer) communication solution.

In order to allow the intercommunication and validation of the information in each block, the system is responsible for a continuous, cyclic and perennial verification of the set of signatures that validate the blocks in their *previous chains until arriving in the system's mobile system*, which was intelligently designated by engineers as the Genesis block (evidently valid for the most well-known system in the present-day blockchain bitcoin: mined on September 1, 2009). This is an essential task for the maintenance of system operations, as shown below:

Figure 2: Chain transactions in the blockchain



Source: PIRES, 2016, p. 28

Each operation finds resonance in the Genesis block, but the return task is only accomplished with the validation of the incoming and outgoing digital signatures:

[...] when entering a public key on the exit of the transaction (or a hash of the transaction), only the holder of the corresponding private key will be allowed to use that output. In the transaction validation process, the public key reported in the Input field is compared to the public key previously entered in the output. If they are different, the transaction is considered invalid and is not propagated to the other network nodes. If they are equal, the signature entered in the Input field is checked with the previously confirmed public key. If the signature is authentic, that is, if the decryption with the public key reveals the hash of the transaction data, then the transaction is validated, replicated to the other network nodes and collected en bloc for mining. (PIRES, 2016, p. 29)

It is therefore apparent that all the substantial consistency of the so-called virtual currency is in reality tied to continuous encoding and decoding, whose lengthy and countless occurrences end up generating an increasingly sophisticated cryptography with an increasing capacity to hinder its mathematical solution. And this is where the main (and most nerve-wracking) begins, in our view, the system's touch on social reality: who operates the resolution of mathematical questions? who are the system operators? Always computers and only computers?

In reality, the *blockchain works* from a hidden operator who, having as a working instrument computers of high processing capacity, takes care to decrypt the information of the block, according to the schemes illustrated above. In advance, therefore, it is necessary to fix the premise contrary to the common observations in the media and even in brief academic

digressions that credit blockchain with an intriguing "*autopoietic*" ability, meaning that the block system would be an automaton organism, independent of intermediaries.

The understanding of the mechanism present in the blocs reveals, therefore, that the traditional monetary system does not dispense with an operator, nor does blockchain dispense with *operators*. Miners are the essence of the existential and economic viability of the blocks. The *blockchain*, therefore, closely sports an economic logic such as the traditional system, albeit of a peculiar nature.

3 FOUCAULT GOVERNANCE AND ITS RELATIONSHIP TO CRYPTOCURRENCY TECHNOLOGY

Through a lecture given at the Collège De France Course, on February 1, 1978, Foucault explained how one of the central tenets of his thought historically emerged: "governamentality" (FOUCAULT, 1979). He deduced the concept from an explanatory historical digression about the understanding of the mode of government of the States, between the sixteenth and eighteenth centuries, all linked to the conceptual tripod that involves security, population and government. For the author, in a certain period of the Middle Ages (before the sixteenth century), there were already treaties devoted to the teaching of the way of exercise of power by the prince, but it is from the sixteenth century that come to appear treatises on the art of governing (government techniques) (Foucault, 1979).

The ideas exposed are many and the text, although short, is extremely dense. An idea presented in the lecture draws attention, because it synthesizes the author's global thinking and demonstrates his philosophy of situating institutions, people and other social structures as means for the exercise, maintenance and control at the service of power. When talking about the variations in the role of family and population in the analyzed period, Foucault reveals an intelligent and intriguing finding. Before base and raw material, and confused with the very existence of the population, the family, with the emergence of new technologies to govern, begins to be perceived as also an instrument at the service of power. There are several causes for this displacement, all worked with precision throughout the text, but what matters most is that, without its members realizing it, the family structure became a stronghold of instrumentalization of power. Foucault reveals: "[...] insofar as, when one wants to get something from the population - as to social behaviour, democracy, consumption, etc. - it is for the family that one should pass. From model the family will become instrument" (FOUCAULT, 1979).

The same is true of the population that was previously only a fundamental constituent element for the existence of the state and the justification of a government. From Foucault's analysis, however, it is revealed that the population itself also, without the slightest awareness of this fact, became an instrument for the exercise of power. In an intelligent phrase, Foucault reveals the phenomenon, going on to indicate the population as "conscious, in front of the government, of what it wants and unconscious in relation to what it wants to do" (FOUCAULT, 1979). And as the phrase indicates - and therein is revealed the genius of the author:

the instrumentalization of the population takes place through movements of the population itself unconsciously, ie: "unconscious in relation to what you want it to do" (emphasis added).

Starting, therefore, from the research of this important period of transition from the absolutist state to the bourgeois state, Foucault identifies that power has ceased to be transcendent (as something immaterial and justified from the outside to the inside) to become immanent (something internal, concrete and with an end in itself). From this distinctive trait is born the classic differentiation made to observe that the immanent power controls the individual in much broader aspect than in the practice of transcendent power. While for the absolutist State the logic was to "let live and cause to die", in the bourgeois liberal State the primordial was to "make live, let die". (MÉDICI, 2011, p. 59):

For Foucault, if it produces the novedad de la emergencia de la tecnología biopolítica del poder a partir del siglo XVII/XVIII. With regard to what, Istin-
ción griega who celebrated himself through The Politics of Aristotle, between bios (la vida de la Polis, cualificada políticamente, del zoon politikon, como búsqueda del Buen vivir), y la Zoé la mera vida natural que es común al hombre y a otros animales, deja de tener sentido: bios y Zoé se entremezclan en la medida en que esta última es crecientemente objeto de políticas de Administración de la vida. La gubernamentalidad, a diferencia del poder soberano de carácter disciplinario que «hacía morir y dejaba vivir», teniendo en el ritual de exhibición sacrificial de la muerte infligida como castigo, el espectáculo por el que se afirmaba su soberanía, deja paso a la «biopolítica» en el que el principio se invierte: ahora el poder «hace vivir y deja morir»

This binary element is extremely important because it reveals ways of exercising power in a society which is still extremely useful today. It can be said, without fear, that the modern state follows the formula of "making live, letting die" to the letter. The curatorship and internment, prisons, public health campaigns and social sanitation are just some examples already decennial or centennial. The most important, however, is to note that very new technologies end up revealing the same content of the old microphysics of the Foucaultian power, although decorated with libertarian garments. For the sake of terminological coherence, we conclude that for the present work we use biopolitics and biopower as imbricated concepts, in the sense of constituting that environment necessary for the exercise of this. In this sense:

It is true that today the first position has prevailed, with the adoption of biopolitics as a set of biopowers that are exercised over people in order to convince them to adopt this or that social practice, without concern for the emancipation of society or the development of people's potentialities. By way of example, people are convinced to buy a particular product and exchange it as soon as a new version is released, as if the ownership of such a good is the only way to ensure personal satisfaction. (SERVA; DIAS, 2016)

In spite of the position of authors who admit biopower and biopolitics as hypothetically separable concepts, there seems to be no reason to think this way in relation to blockchain. From such premises, it is possible to begin to determine that in Xsxs cryptocurrencies there is a clear component of what we can call "liberal governmentality" and later "neoliberal governmentality". Médici (2011, p. 67) situates this kind of "governmentality" in the economic context, with clarity and precision:

El laissez faire del liberalismo clásico no equivale a un abstencionismo gubernamental: el estado debe adoptar las medidas necesarias para permitir que economía, población y sociedad se autogobiernen a partir de su propia

dinámica interna. Aquí se emplazan todas las reflexiones que enfatizan el nexo entre población, producción y riqueza de Adam Smith, David Ricardo hasta Bentham y Malthus.

Foucault's thought in the liberal context is intriguing and revealing, because it is characteristic of the *laissez faire* economic model contrary to its own founding reasons, originally conceived in the thinking of Adam Smith. In reality, the reasons that liberalism so strongly supports the freedom of individuals about their choices is nothing more than a reinforcement for the even more sophisticated exercise of biopower:

De ahí que las técnicas de la gubernamentalidad liberal, insisten en coordinar indirectamente la autonomía de los gobernados, en sus procesos de subjetivación y en las tecnologías del yo. La supervisión directa del estado es substituída por la "acción a distancia" que se apoya en el «cuidado de sí» de individuos autoresponsabilizados. (MÉDICI, 2011, p. 67)

Liberalism is therefore born as a project of strengthening the subjectivity and self-responsibility of individuals, founding even more complex mechanisms of activation and maintenance of the biopolitical network conceived by Foucault. And the nature of this process is, as it turns out, primarily economic in nature and continues to be, although now with the aid of power devices reinforced by technology. And it is important to say: the sophistication and power-spraying capacity are not exhausted in the liberal moment. Historical events are especially interesting because they led, at the same time, to the emergence of a radically reformulated liberal model, commonly called neoliberalism.

The liberal economic failure - symbolized maximally by the crash of the New York Stock Exchange in 1929 - created the propitious moment for the diffusion of interventionist economic concepts of socializing aspiration (DIAS; DUE, 2018, p. 214). John Keynes built the foundations of a new mode of government with his paradigmatic work "General Theory", weaving considerations on the need for state action to create ideal conditions of income, consumption and, consequently, foster investments (HUNT; LAUTZENHEISER, 2005). It occurs, however, that even the Keynesian-inspired social model experienced structural economic difficulties for the governments that adopted it, creating the ideal climax for the return of liberal thinking now heightened and even more encampador of biopower mechanisms:

In the early 1970s, the capitalist economic model began to show signs of economic instability and an accelerated inflationary process. These factors led to the rise of the neoliberal theoretical model, because, according to its conception, the origins of the crisis were the excessive control of the state in the economy. [...] an ideological movement has been conquering space worldwide, neoliberalism. This model of political and economic orientation, which constitutes the political expression of globalization, is characterized by an opposition to the interventionist state and social welfare. (FERRER, 2001)

The adoption of the neoliberal model was even so striking that it brought with it a marked difference from classical liberalism. Now much more than ensuring a free environment for subjectivation and self-deception, it is up to "gubernamentalidad" to fabricate realities. As noted by Medici (2011, p. 70):

Pero a diferencia del liberalismo clásico, que consideraba que simplemente había que liberar la realidad natural del homo oeconomicus y del mercado, la gubernamentalidad neoliberal es constructivista: se trata de una realidad

que hay que fabricar. Para los sujetos del neoliberalismo el interés en la propia realización personal, su capacidad de elección, sólo pueden brotar en un entorno adecuadamente construido y programado.

The main idea is to promote conditions for the development of a self oriented individual for individual entrepreneurship. Among other factors, it lies on the human being and demands from him - in these new spaces - the foundation of an entrepreneurial being. As noted by Medici (2011, p. 71):

En primer lugar, la empresa se transforma en un modelo que se expande a la gestión de la propia vida. Este dispositivo no aparece justificado solamente en logros materiales como la ganancia y la riqueza, sino también a partir de valores «espirituales» [...] Para enriquecer espiritualmente el propio yo, para obtener beneficio y equilibrio afectivos en la familia o en el trabajo, para dar forma a un estilo de vida auténticamente personal, es necesario hacer de la propia vida una vida de empresa.

Blockchain, by the manifestation of cryptocurrency, brings together the essential characteristics of "neoliberal governance". In our view, the blocks embody in individuals a clear idea of "being entrepreneurial". The operative subjects of the block, whether in the condition of brokers, investors or miners, undoubtedly act in order to become production plants of themselves. In this first aspect, in fact, we cannot fail to mention the energy factor involved in the processing of data in the blockchain's encrypted information chain. Electricity consumption for data processing by miners is very high (UMLAUF, 2019), to the point of making mining impossible in countries with scarce sources of electricity or whose final cost of the "kilo" or "terawatt" is prohibitive in relation to the economic advantages provided in mining (JAKITAS, 2017). Some reports point out that the average consumption of all computers connected in mining activity easily reaches 30 terawatts/hour, equivalent energy to put into operation, for a year, a country like Ireland, for example (JAKITAS, 2017) Medici also presents as the second element present in the "neoliberal governance" the creation of new artificial markets. The goal would be to "foster individual self-responsibility". This creative process would, in turn, be due to the privatization or decentralization of markets or processes that would lead to the use of the market. According to Medici (2011, p. 71): "When public services are not privatized if they are decentralized and if they require economic sustainability and functioning according to criteria of efficiency, efficiency and profitability".

Here again is the technology of digital coins. Note that it is from the creative genesis of the "blockchain" in its "monetary" representation, at one time, if possible, decentralize and privatize. The exchange rate of the values transmitted by the blocs does not depend on any sovereign government either in terms of their operation or in terms of regulation. Medici also advances to a third characteristic of the "neoliberal governance" which, in our view, correlates very much with the genesis of cryptocurrencies. It is what the author calls "a new prudencialism". The primary idea is to detach the needs of the individual through the State. The new "prudencialism" clearly represents the neoliberal nature of this new "governmentality", which now demands a clear divorce mechanism with the classic vertical welfare relationship of the Welfare State. Primarily, the prudence of the neoliberal subject must focus on obtaining, in the artificially created "free" spaces, the necessary foresight for the satisfaction of all their present and future needs. In the face of this implacable need, how would it sound to enable these new "subjects of self-management" to compose a completely free monetary order? In

response to the reflection, it seems that the "cryptonetic" environment more properly represents the ideal aspiration of a "bioempowered" citizen.

4 BLOCKCHAIN AND ITS REGULATION AS SAFETY DEVICES

All the cynical and maximally invisible power of the Modern State - seen from the historical disruption we present - is only possible, of course, because efficiency mechanisms authorize it. Foucault calls "safety devices" the set of technologies that enable micro-physical power. According to Medici (2011, p. 60), the devices would be:

[...] una retícula de saberes, poderes, disciplinas, normas morales y jurídicas, reglas, trozos y retazos de discursos de distintos géneros, articulados de forma estratégica y flexible para responder a la necesidad de producir efectos de poder.

For the universe of law, moral and legal norms are of particular interest as relevant devices for the identification of the framework of real interests of the State. For example: for those who pay attention to interdiction and curation, many of the concepts, from Foucault's criticism, can help to deeply revolve dogmatic categories of civil law (e.g. it is enough to observe how the new paradigm of the person with disabilities changed the legal panorama of the private codification). But not only through standards is a safety feature manifested. Other knowledge also fulfills this role, such as statistics, research and campaigns, especially nowadays with the massive spread of new technologies. Blockchain technology and its primary application by virtual currencies is new, but the concept of its operating structure is not so much. Its organization, as we have seen, has great similarity with the founding ideas of the liberal economic system, bringing cryptocurrencies closer to the ideological motto of the so-called Austrian School (VAN DER LAN, 2014, p. 05) which, in turn, constitutes a line of thought strongly identified with the current neoliberal policy (GROS, 2002, p. 75). Observed the identification of blockchain technology with the historical moment of the emergence of "neoliberal governmentality", we begin to demonstrate how, through it, biopower is effectively exercised. First, in the intriguing idea of qualifying the individual in the measure of the spiritual transformation of his "self" into an entity of business production, in the sense of Medici (2011), a renewed security device manifests itself. In reality, at the heart of Bitcoins production, the value estimation of each unit of currency is transformed into a serious speculative mechanism that, like any other, finds behind its scenes the cunning cynicism of biopower. The great difference that the Foucault reference reveals is that the active participants of the block do not realize it. They would be engrossed by the idea that they control their own destinies as entrepreneurs of themselves when, in fact, they are serial mechanisms of a cynical "governmentality" by nature.

Still, regarding the "governmentalist" characteristic of the creation of fictional markets (MEDICI, 2011), the empirical structure of the block itself fits the concept. Now, the essence of the "cryptocurrency blockchain" is in fact the creation of an alternative financial path parallel to the traditional economic domain. Moreover, the entire essentially private and decentralized network of the bloc would support the opposite of its

purposes. At the reversal of freedom and the emancipation of virtual currency in relation to power, deregulation would mean the facilitation of the influxes of biopower. Again the idea is to make believe in the independence and emancipation of technology so that its users keep it active and serving the purposes of reproduction of a "Biocapital". In the new prudencialismo that we point out as being one of the elements of the "neoliberal governmentality" (MEDICI, 2011) - very present in the "blockchain" - we see once again the classic elements of biopolitics and biopower of Foucault. From all this it follows that by the operational exercise of the Xs cryptocurrencies the serious effect of making unnecessary, in the intimate of each individual, to debate other possible forms of rupture with the circulating biopolitics, especially those of economic-financial character. In the "cryptomoneretary blockchain", therefore, the dialectical soul of the subject is completely absorbed by the convictions of his "corporate self", busy in unraveling the technological wonders of these new virtual fields and with serious concerns about his new prudential role. Not by chance, the identification of cryptocurrencies with this clear biopolitical profile amplifies the reflection, and the relationship "biopower-regulation" assumes importance even in the reflection of economists like Chemalle (2017, p. 4-5) for whom:

In other words, while the practices of freedom evolved along with technology, the effectiveness of the power of control also did. Michel Foucault reminds us in his work "Watch and Punish" (2013) that the same lights and clarifications that brought technological advances, and consequently freedom, also invented the forces of discipline and control. Even with the initial purpose of horizontalizing the relations around the use of currency, Bitcoin, to become widely accepted as a de facto currency, will continue to be subject to constant forms of supervision and regulation. Perhaps the ideal of a coin entirely detached from the central authorities is nothing more than a platonic love, or a libertarian dream.

Emancipation by virtual monetary practice is therefore not assumed but only assumed. The visit to the modern and quality references reveals that alongside the propagated freedom and disruption of virtual coins emerge parallel and necessarily formidable serviceable elements to biopower, because, as observed, blockchain resembles many other technologies boasted as disruptive and liberating. As we have seen, the bloc is attributed an ability to unite people directly by the logic P2P (peer to peer) being apparently absent from the chain, therefore, the representation of any institutional power, and one of its main uses is related to cryptocurrencies, especially bitcoin. The monetary expression circulating through the mathematical logic of the successively "mined" information chains would also forego any regulations and fluctuations in the course of the "virtual currency" would, in turn, be corrected naturally by the natural interest of their possessors. Playing with words, the system would be a "crypto-mythical laissez faire" and all these features make the technology touch the legal system. However, Bitcoins challenge the economic order (article 170 and following of the Federal Constitution) as well as the financial-monetary system (article 163 and 164 of the Federal Constitution), directly affecting constitutional principles and precepts instituted there and reason for being normative that discipline an already series of strained relations and social expectations.

As for the legal feasibility, it is necessary to question, first, the scope of cryptocurrencies, fitting a small digression. Decentralized and deregulated monetary systems, contrary to what

can be imagined, are nothing new and have no historical advantages compared to regulated monetary models. Van Der Lan notes that, at certain historical moments, non-institutional models provisionally prevailed:

Indeed, centralized issuance has been the rule of contemporary societies, with economic history showing to have supplanted earlier deregulated systems of multiple monetary issuance by private banks - the free banking model. The very social demands of the post-1929 period proved necessary to prevent the continuation of totally free and unregulated banking systems, leading to the creation of central banks as a rule in modern economies from then on. The government guarantee to the banks has become crucial for the monetary systems to operate at lower risk than the banking counterparty (VAN DER LAN, 2014, p. 09)

Still in this line, the essentially neoliberal character, identified not only by deregulation but by the fluid nature of the virtual environment of cryptocurrencies, at least in the Brazilian context, demonstrates, contrary to what its advertisers defend, more potential problems than durable solutions:

Risks inherent in new monetary arrangements, outside the regulation of the state, make the broad use of new currencies a difficult task. By definition, the existence of a competitive market for virtual currencies, in place of a single sovereign currency, presupposes that there is no predominant currency, which compromises per se your life expectancy - and the very ability to universalize only one as a monetary standard. (VAN DER LAN, 2014, p. 10)

Especially in the virtual environment, the expected competitive effects of this new fictional universe charged by the expectations of governmentality suggest a number of immediate to medium- and long-term problems. Still telling us about Van Der Lan (2014, p. 10):

This is most true in the virtual sphere, where competition is implicit, for the freedom and decentralization of communication through the Internet itself. Nothing guarantees that one very liquid currency at a given time and place will not be replaced by another, in a competitive process, and may even be disregarded, in the future, as a currency per se. It is entirely plausible to assume that a new virtual currency will emerge with more technological advantage than bitcoin. From there it would become just another unit that, as in the past, has already been used as a monetary asset.

It is difficult to maintain, therefore, that virtual currencies would boast any elements of superiority as an economic and financial model differentiated from what currently regulates the Federal Constitution. Moreover, the similarity of the bitcoin system with the extremes of the neoliberal system reveals a situation of difficult conciliation with the economic and financial constitutional system. This is because, although it has adopted the capitalist economic model, at the same time our Constitution has raised to the first greatness so many other values transcendent to Capital, which prestige the development of life in the social environment. Stresses Eros Grau:

Can this economic order be the object of dynamic interpretation, which allows its adaptation to the changes of social life - and so that, configuring itself as a dynamism, in the future, of real life taking the forces on which it depends so that it is alive, it is adequate to social reality? (GRAU, 2011)

In no way does the Constitution encompass a pure neoliberal economic model. As Eros Grau explains: "[...] the Constitution being a system endowed with coherence, one does not presume

contradiction between its norms" being absurd to assume "[...] that there are, in the 1988 Constitution, two economic orders, one neoliberal, another interventionist and dirigista." (GRAU, 2011). It is, therefore, of the semantic essence of the text that not only norms, but any economic practice that conflicts with this principle apparatus, ends up challenging the constitutional order (GRAU, 2011). Thus, the constitutional text, while admitting the capitalist order and some principles aligned with neoliberalism, does not seem generally compatible with a neoliberal agenda. It seems incompatible, therefore, the existence of a mechanism of apparent reflux of the "neoliberal governmentality" with the prospections of the constituent. In this sense, the lack of regulation of the theme has already led the Superior Court of Justice to judge legitimate the conduct of financial institution in closing current account maintained by cryptocurrency brokerage (BRAZIL, 2018):

SPECIAL REMEDY. OBLIGATION TO DO ACTION. THE CLAIM DRAWN UP BY AN INTERMEDIARY UNDERTAKING BUYING AND SELLING VIRTUAL CURRENCY (IN THE CASE OF BITCOIN) TO OBLIGE THE FINANCIAL INSTITUTION TO MAINTAIN A CURRENT ACCOUNT CONTRACT. TERMINATION OF CONTRACT, PRECEDED BY REGULAR NOTIFICATION. LAWFULNESS. IMPROMPTU SPECIAL APPEAL. [...] 4.1 Far from being abusive, the refusal of the financial institution to maintain the current account contract, used as an input, in the development of the business activity carried out by the applicant, is legitimate from an institutional point of view, intermediation of buying and selling virtual currency, which does not have any regulation of the National Monetary Council [...]

This decision was eventually adopted as a parameter by other banking institutions to carry out the closure of accounts maintained by cryptocurrency brokers, in a practice that can be considered discriminatory (MOURA; OLIVEIRA, 2019). One of the solutions to these problems generated by the lack of regulation would be the possibility of framing cryptocurrencies as a unit of speculative value, categorizing them, perhaps, as one of the kinds of securities contained in Law 6,385/76 or even regulating them by specific law. However, there is no indication that regulation (even by subsumption to a legal type already in force) will do anything other than "cryptocurrencies" to capture them for use and hegemony of traditional biopowers.

And if it is true that the legal framework of bitcoin would make cryptocurrency a certain instance of biopower concentration, it remains difficult, on the other hand, to assess whether a given autonomous framework or regulation would make it more or less susceptible to the exercise of biopower. In any case, through the adopted framework, it seems more consistent to admit that the path towards a regulation attentive to the observance of the principles circumscribed in Articles 163, 164 and 170 of the Federal Constitution has a greater advantage. Regulated, the "cryptocurrency blockchain", although captured in part by traditional biopolitics, would at least enable the rediscussion of its assumptions through the consensual channels that the democratic state itself typifies. On the other hand, the complete lack of regulation seems to us more worrying, because, without parallel control mechanisms, the system would be irreversibly subject to biopolitical influence.

7 FINAL REMARKS

The blockchain, in the modality that materializes cryptocurrencies, seems to realize a well-defined plan of "neoliberal governance" authorizing the fluidity of biopolitics, because, internally: a) it fosters the idea of the individual as a centered ego production plant, a "corporate being" quite in itself; b) structurally represents the creation of a new virtual and, so to speak, artificial market; an extra space for the reproduction of biopower in the conception of its enlargement by the neoliberal biopolitical strategy; and, finally c) reveals the face of a new "prudentialism" by the search for individuals who automatically and docilely are sufficient or responsible in themselves as regards both the current and sufficiently far-sighted means of survival as to the future. It reveals, therefore, the blockchain system, in what concerns cryptocurrencies, as well as other new technologies, a means for the exercise of a very sophisticated, subtle and capillarized economic-financial biopolicy. The pillars on which the system was built (whose authorship is anonymous) play the role of channeling the energy of individuals to an eminently speculative base gain, with the aggravating belief that without the usual intermediaries, represents the system a form of disruptive emancipation. As such, by announcing a general idea of utility, it ends up making real discussions about effective emancipation in relation to traditional biopolitics and biopower, especially those of a financial nature, unnecessary. Without ballast, what seems to price the currency is the disposition of those who, in the next operation, will be willing to pay more for it. Pricing becomes an economic mechanism of gain and loss even more focused on neoliberal extremes than the traditionally known stock market, for example. Finally, for the economic-financial legal scenario, the following findings result: a) as a currency there seems to be no legal basis that accommodates "bitcoin" among the constituent's prescriptions; b) the existence or not of regulation does not remove the intimate link that exists between the "crypto-criminal blockchain" and the biopower, which may vary only, in one case and another, in intensity; c) the framework in current securities legislation or its specific regulation, on the other hand, seems at least to allow the system, although partly captured by traditional biopolicy, can still be rediscovered by the consensual channels that the democratic state itself typifies.

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Recebido/Received: 16.06.2020.

Aprovado/Approved: 26.09.2020.