



CITY COINS: ANALYSIS OF CONSTITUTIONAL AND LEGAL ASPECTS FOR THEIR IMPLEMENTATION IN BRAZILIAN CITIES

CITY COINS: análise dos aspectos constitucionais e legais para a sua implementação nas cidades brasileiras

CITY COINS: análisis de los aspectos constitucionales y legales para su implantación en las ciudades brasileñas

Andressa Guimarães Torquato

Universidade Federal Fluminense - UFF, Niterói, RJ, Brasil

Lattes: <http://lattes.cnpq.br/0022426626370020> ORCID: <http://orcid.org/0000-0003-4839-2659>

E-mail: andressatorquato@hotmail.com

Annalice Oliveira Azevedo Baldini Figueira

Universidade Federal Fluminense - UFF, Niterói, RJ, Brasil

Lattes: <http://lattes.cnpq.br/7441085103752683> ORCID: <https://orcid.org/0000-0002-1739-8647>

E-mail: annalice.baldini@outlook.com

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ABSTRACT

With the current technological advance, the organization of cities has undergone major changes, such as the institution of city coins, local digital currencies that have multiplied in the international experience. This study aims to demonstrate the legality and constitutionality of such initiative before the Brazilian legal system. For this purpose, the method used was a qualitative study which initially presented the taxonomy of digital coins, essential to the harmonization of the concepts involved and the better understanding of each one. Next, experiences of city coins in the international context are presented. Subsequently, the reason why city coins would not violate the exclusive competence of the Union for the issuance of coins foreseen in the Federal Constitution of 1988 is discussed. Finally, the last two chapters analyze the conformity of locally issued digital coins with the current constitutional framework. As a result, the study in question indicates the possibility of establishing city coins in Brazilian cities, and aims to serve as a legal theory support to such initiatives, which have much to add in terms of public policies, local development, promotion of culture and other areas of importance in local management.

KEYWORDS: Digital currency. Smart cities. Public policies. Constitutional competence. Federative autonomy.

RESUMO

Com o atual avanço tecnológico, a organização das cidades tem passado por importantes modificações, como a instituição das *city coins*, moedas digitais locais que têm se multiplicado na experiência internacional. O presente estudo tem como objetivo demonstrar a legalidade e a constitucionalidade de tal iniciativa perante o ordenamento jurídico brasileiro. Para tanto, o método utilizado foi um estudo qualitativo em que se apresenta, inicialmente, a taxonomia das moedas digitais, essencial à harmonização dos conceitos envolvidos e à melhor compreensão de cada um deles. Em seguida, são apresentadas experiências de *city coins* no contexto internacional. Posteriormente, discute-se a razão pela qual as *city coins* não violariam a competência exclusiva da União para a emissão de moeda prevista na Constituição Federal de 1988. Por fim, nos dois últimos tópicos do trabalho, analisa-se a conformidade das moedas digitais emitidas em âmbito local com o quadro constitucional vigente. Como resultado, o estudo indica a possibilidade de instituição das *city coins* nas cidades brasileiras e espera servir de embasamento jurídico a tais iniciativas, que muito



têm a agregar em termos de políticas públicas, desenvolvimento local, fomento à cultura e outras áreas de importância na gestão local.

PALAVRAS-CHAVE: Moeda digital. Cidades inteligentes. Políticas Públicas. Competência constitucional. Autonomia federativa.

RESUMEN

Con el actual avance tecnológico, la organización de las ciudades ha experimentado grandes cambios, como la institución de las monedas de ciudad, monedas digitales locales que se han multiplicado en la experiencia internacional. El presente estudio tiene por objeto demostrar la legalidad y constitucionalidad de dicha iniciativa ante el sistema jurídico brasileño. Para ello, el método utilizado fue un estudio cualitativo que presentó inicialmente la taxonomía de las monedas digitales, esencial para la armonización de los conceptos implicados y la mejor comprensión de cada uno de ellos. A continuación se presentan las experiencias de las monedas de las ciudades en el contexto internacional. Posteriormente, se examina la razón por la que las monedas de la ciudad no violarían la competencia exclusiva de la Unión para la emisión de monedas prevista en la Constitución Federal de 1988. Por último, en los dos últimos capítulos se analiza la conformidad de las monedas digitales emitidas localmente con el marco constitucional vigente. Como resultado, el estudio en cuestión indica la posibilidad de establecer monedas de ciudad en las ciudades brasileñas, y espera servir como base legal para tales iniciativas, que tienen mucho que aportar en cuanto a políticas públicas, desarrollo local, fomento de la cultura y otras esferas de importancia en la gestión local.

PALABRAS CLAVE: Moneda digital. Cidades inteligentes. Políticas públicas. Competencia constitucional. Autonomía federativa.



INTRODUCTION

Before the technological evolution the world has been going through, it is discussed how the cities can use that technology in favor of people, making that a facilitator to the improvement of their life quality.

In that context, arises the concept of *smart cities*, that designates the capacity of a city to make use of the new instruments that information and communication technology provide to solve problems and create more efficient solutions in areas like public security, energy, sustainability, education, health, and finances.

Recently, an innovation on the area of public policies management have been the new bet of cities like Tel Aviv, Seoul, London, Vienna, Berkeley, Dubai, among others, to deepen their process of transformation to *smart cities*: it's about the creation of a digital coin, called *city coin* or *local coin*. In spite of the distinction of formats and purposes between each of them, reward digital coins have been standing out, by means of which, the citizens earn local coins each time they practice acts that are understood as positive to the city.

In this respect, the goal of the present article is to verify if the creation of a reward digital coin able to circulate in Brazilian cities would be or would be not in conformity with the constitutional precepts and with the legislation in force in the country, as well as its role as a public policy management instrument able to optimize public resources, conferring more efficiency to public policies already exercised by the municipality, besides serving as an inductive instrument to positive behaviors to the local collectivity.

For so, initially, on topic 1, there will be a presentation about the taxonomy of digital coins so that it's possible to understand, on the next topic, the theme of the *city coins* in the international experience.

On topic 3, it's analyzed the Union's competence to the emission of fiat money, being this one followed by topic 4, in which is analyzed the conformity of the digital coins considered in a wide way to the Brazilian constitutional framework. Finally, on topic 5, are discussed the constitutional fundamentals and limits to the specific emission of the *city coins*.



1 TAXONOMY OF DIGITAL COINS

Many international organizations and the own national governments have been concerned on elaborating studies about the taxonomy of digital coins, with the goal of harmonizing the use of the involved concepts and better comprehend each of them, including the aim of creating regulations that assess their specificities.

Some of those studies have been standing out internationally and influencing governments and scholars on the subject, among which are mentioned *Virtual Currencies: key definitions and potential AML/CFT risks*, published in June of 2014 by *Financial Action Task Force (FATF)* and the *Virtual Currency Schemes*, published in October of 2012, by the European Central Bank (ECB). In both, the expression digital coins is used as a genre that has two species: virtual currency and the e-coins. According to FATF, the electronic coins would be mere electronic representations of fiat money, therefore, don't have their own unit of account. Are constituted, then, in a "digital transfer mechanism for fiat currency" (FATF, 2014, p. 04).

Virtual currencies, in turn, are defined as:

Virtual currency is a digital representation of value that can be digitally traded and functions as (1) a medium of exchange; and/or (2) a unit of account; and/or (3) a store of value, but does not have legal tender status (i.e., when tendered to a creditor, is a valid and legal offer of payment)⁶ in any jurisdiction. It is not issued nor guaranteed by any jurisdiction, and fulfils the above functions only by agreement within the community of users of the virtual currency. (FATF, 2014, p. 04).

In the same sense, the ECB differs virtual currency from electronic money, highlighting that "in electronic money schemes the link between the electronic money and the traditional money format is preserved and has a legal foundation, as the stored funds are expressed in the same unit of account (e.g. US dollars, euro, etc)" (ECB, 2012, p. 16). Then goes on to say that, on the other hand, "in virtual currency schemes the unit of account is changed into a virtual one (e.g. Linden Dollars, Bitcoins)" (ECB, 2012, p. 16).

That classification was adopted the Central Bank of Brazil, in its memorandum no. 25,306 from the February 19th, 2014, according to which:

The CENTRAL BANK OF BRAZIL clarifies, initially, that the so called virtual coins is not identical with the "electronic coin" mentioned on Law nº 12,865, from October 9th, 2013, and its infralegal regulation. Electronic coins, how addressed by these regulatory acts, are resources stored in an electronic device or system



that allow the final user to make payment transaction denominated in national currency. On the other hand, the so called virtual currency have its own way of denomination, in other words, are denominated in a distinct account unit from the money emitted by sovereign governments, and aren't characterized electronic devices or systems of storage in reais.

Besides the analyzed classification, the European Central Bank (ECB) also proposes to classify the virtual currencies in three species, depending on the way they interact with fiat money, namely, if there is or not the possibility of converting the virtual coin in fiat coin and vice-versa. See:

(i) *Closed virtual currency schemes*: These schemes have almost no link to the real economy and are sometimes called "in-game only" schemes. Users usually pay a subscription fee and then earn virtual money based on their online performance. The virtual currency can only be spent by purchasing virtual goods and services offered within the virtual community and, at least in theory, it cannot be traded outside the virtual community.

(ii) *Virtual currency schemes with unidirectional flow*: The virtual currency can be purchased directly using real currency at a specific exchange rate, but it cannot be exchanged back to the original currency. The conversion conditions are established by the scheme owner. Type 2 schemes allow the currency to be used to purchase virtual goods and services, but some may also allow their currencies to be used to purchase real goods and services. E.g.: *Facebook Credits*.

(iii) *Virtual currency schemes with bidirectional flow*: Users can buy and sell virtual money according to the exchange rates with their currency. The virtual currency is similar to any other convertible currency with regard to its interoperability with the real world. These schemes allow for the purchase of both virtual and real goods and services. E.g.: Bitcoin. (ECB, p. 13-14)

Other terms also of commonly use on the digital coins field are the crypto currencies and crypto assets. These expressions come from the name attributed to the computational technique used to the creation of coins, called cryptography. According to a study published by the European Parliament, called *Cryptocurrencies and blockchain: legal context and implications for financial crime, money laundering and tax evasion*, published in July, 2018, the mentioned technique can be understood as:

In simple terms, cryptography is the technique of protecting information by transforming it (i.e. encrypting it) into an unreadable format that can only be deciphered (or decrypted) by someone who possesses a secret key.⁴⁸ Cryptocurrencies such as Bitcoin, are secured via this technique using an ingenious system of public and private digital keys (p. 20).



To the term crypto asset, it is attributed a wider sense than the expression crypto currency. In a text published by the International Monetary Fund (IMF) in 2018, entitled *Treatment of Crypto Assets in Macroeconomic Statistics*, it's used the term *crypto asset* as a genre from which would come two species: (i) *Bitcoin-like crypto assets - BLCA (or crypto currencies)*, created with the purpose of serving only as way of payment; and the (ii) *crypto assets other than BLCAs (also called digital tokens)*, which would have a wider scope, that can go from allowing their owners to access a determined service or making possible the investment and partner stakes in enterprises. Specifically in regard of *digital tokens*, the study developed by the IMF classifies them in four species, depending on their underlying economic function, that can be:

Payments Tokens: those intended to become BLCAs and to be used universally (i.e., not restricted to a specific platform) as units of account, store of value, and means of payment (e.g., Litecoin).

Utility Tokens: those designed to provide the holders future access to services by means of a DLT-based application. Examples of such applications are those for file storage, social messaging, and trading (e.g., Ether, Binance coin, and Filecoin)

Asset Tokens: those representing debt or equity claims on the issuer. They generate interest to the holder or promise a share in the future earnings of the company, respectively.

Hybrid tokens: those that are part utility and part asset or payment token. (our emphasis, 2018, p. 07)

In Brazil, besides being broadcasted by the Central Bank of Brazil, the theme of digital coins have been object of notes and regulations emitted by the Federal Revenue and by the Securities and Exchange Commission.

The expression *criptoativo* (crypto asset) was inserted in Brazilian law by way of the Normative Instruction n. 1.888/2019 from the Federal Revenue of Brazil, published with the aim to regulate the provision of information about transactions involving crypto assets in Brazil. On this track, defined the expression on its 5th article, I, as:

I – *criptoativo* (crypto asset): the digital representation of value denominated on its own account unit, which price can be expressed in local or foreign sovereign currency, electronically transacting with the utilization of cryptography and distributed registers technologies, that can be used as a way of investment, instrument of transference of values or access to services, and that does not constitute legal course coin; and

The definition conferred to the term crypto asset by the Federal Revenue of Brazil was very wide, and includes the virtual coins as a whole, i.e., cryptocurrencies as well as tokens, which means, not only the digital coins with the finality of serving as a payment method, but also the called tokens, whose most notorious species are the *asset tokens*, destined to serve as investment, as well as the



utility tokens, which can be used to acquire determined service. About that, see the definition presented by the Securities and Exchange Commission:

Companies or projects on initial stage of growth found on ICO a tool to capture financial resources together with the public. In exchange, issue virtual assets in favor of the investors. The most common denominations of these issued virtual assets are *cryptocoins* or *tokens*.

The *tokens*, that confer diverse rights to its owners can be divided in at least two categories, depending on the type of right conceded: *tokens* that concede access to a service, platform or project from the company, in lines of a license of use or of credits to consume a good or service; and *tokens* that confer to the investors rights of participation on results of the enterprise, or fixed remuneration over the invested capital, or even vote in assemblies that determine the direction of the issuer's business (CVM, 2018, p. 04).

For a deepest comprehension about the concept of *token*, it is highlighted the study undertaken by Tatiana Falcão, which presents an extended list of categories in which tokens can be framed, even though, as explained by the author, one categorization doesn't exclude the other:

(i) Currency or Value Tokens, when similar to a fiat money, notably, when intend to represent the value of that currency and serve as eventual medium of exchange (e.g. Bitcoin);

(ii) Securities Tokens and Equity Tokens (also sometimes named Income-Sharing Token), when the contract verses about financial instruments and securities representative of equity and debt capital, and may take forms of financial instruments, including derivatives and have served, frequently, as a "vehicle" to reproduce an Initial Public Offering in blockchain platforms;

(iii) Utility Tokens, when its emission doesn't implicate the concession of rights to beyond the property of the own token, being able to, (i) admit the access to a product or service of the company (e.g. a Usage Token) or (ii) the permission to contribute and participate in certain work (e.g. Work Token, usually associated to decentralized applications and services), or (iii) admit its sale in market (also frequently issued in the ambit of an ICO); and

(iv) Asset Tokens, when corresponds to a subjacent physical asset (e.g., gold or a property).

(v) Royalty – Sharing token, when the contract allows the token buyer to have participation on the future royalties generated by the issuer from the new technology. The token's owner's (investor) remuneration is proportional to the royalties' amount paid to the token's issuer company. The token can have its value referenced according to the income generated by the new technology (2018, pg. 222-223).

The author also explains that these categories aren't finite nor exclusive. Also highlights that "specialists on the virtual coins trading market alert many other modalities can exist, and even be created, since the operative rules in each token and its consequent legal and financial characterization) are essentially created by the issuer" (2018, pg. 222-223).

On the line of the above, it's verified that the crypto assets can be used for the most diverse finalities, which elevates the difficulty of the jurist on the comprehension of this reality.

Having those concepts, we skip to analyze another category of digital coins, that is the point of this study, in which the peculiar aspect in relation to the other existents is in the nature of the issuer entity: the Municipalities.

2 THE CITY COINS IN INTERNATIONAL EXPERIENCE

The launch of Bitcoin, in 2008, considered the first decentralized global virtual cryptocurrency, i.e., that doesn't depend on a central authority to intermediate the realization of transactions, have shown to be the turning point on the contemporary monetary history. (*The Internet of Money*).

So that it doesn't depend on an intermediate third party, the coin in question, created by Satoshi Nakamoto, works with a reason-book denominated *blockchain*, that registers each of the effectuated transactions, with the intention to suppress the problem of double expense, very frequent in previous virtual transactions, as described by Fernando Ulrich:

The invention of Bitcoin is revolutionary because, for the first time, the problem of double expense can be solved without the necessity of a third party; the bitcoin does it by distributing the indispensable historical register to all the system users via a peer-to-peer network. Every transaction that happens in the Bitcoin economy is registered in a species of public and distributed reason-book called blockchain (a chain of blocks, or simply a public record of transactions), which is nothing more than a great public database, containing the historic of all transactions made. New transactions are verified over the blockchain to assure that the same Bitcoins haven't been previously spent, eliminating the double expense problem. The global peer-to-peer net becomes the own intermediate [...] (2014, p.17).

Due to its decentralization, the Bitcoin, which is protected by a cryptographic verifying system, meant a milestone in the finance and monetary system, considering that in former times the realization of virtual trading operations without the presence of a third party wasn't possible. Since then, it has been widely traded in the whole world, allowing an expressive number of individual transactions, besides being used for speculative purposes. In this field, according to information



released on the CoinTrader Monitor¹ website, the trading volume of Bitcoin in Brazil exceeded the amount of R\$13,000,000,000.00 (thirteen billion reais) in March of 2020.

Even though the Bitcoin and a series of other digital coins have been launched with the goal of functioning as a payment method on the global plan, there is an important range of complementary digital coins² to the fiat coin which, as David Lee Kuo Chuen and others teach, has place exactly because of a diametrical opposite factor: the localism. In this context, it is common that community commerce are installed based on a local alternative coin

There are many socio-economic forces that push the demand for alternative coins:

Localism: by mean of promotion of a community commerce or a “*save high street*” commerce (local commerce, with smaller enterprises), the localism retains the consumption amidst a group of independent retailers or in a geographic area, to employment creation and improvement of negotiating conditions there;

Technology: the alternative coins have been becoming easier to use, with developed softwares and low restrictions to its adherence, contributing to a net effect;

Political economy: there is a disillusionment about the high payment to CEOs and bankers and the notion that traditional banks are too big. With the high level of debt and a quantitative flexibilization, there is also a great discomfort regarding the economic uncertainty;

Environmentalism: there are ecological concerns and it is being questioned if the point of maximum extraction of natural resources such as oil was already reached;

Inefficiencies: financial services are overpriced and the finance system as a whole is very expensive;

Financial freedom: some digital coins like the cryptocurrencies have the advantage of trading values through the Internet, where there is low control. Those digital coins can allow the users to get around the capital control and may provide a ‘safe harbor’ during a fiat coin crisis

Speculation: buyers of digital coins like cryptocurrencies are anticipating a price valorization due to its respective wider future acceptance. (2015, p. 8).

¹Exchanges’ volumes from April 2019 to March 2020. CoinTrader Monitor, 2020. Available in: <<https://cointradermonitor.com/relatorios>>. Access on: June 21st, 2020.

² The complementary coins are alternative instruments to the fiat money, that allow the development of determined markets and generally local initiatives. In that sense, the social coins and also the municipal digital coins can also be considered species of complementary coins.



In this scenario, in which global and local communities – including private companies, such as Facebook³ – have in parallel to the monetary power of the national states, started to institute their own digital coins, another innovation has presented in the world of facts: the municipal digital coins, also called *city coins* or *local coins*, digital coins issued by their own municipal entities.

The city coins have been instituted in cities such as London, Vienna, Liverpool, Seoul, Belfast, Tel Aviv, Berkeley, Dubai and others⁴⁵⁶.

Even though there are different characteristics within them, they have been seen as an important instrument of transformation of the referred cities in *smart cities*⁷, term that designates the capacity of the cities to make use of the new instruments that communication and information technology provide to solve problems and create more efficient solutions in public policies, improving the life quality of the citizens.

In Vienna, Seoul, Tel Aviv and Belfast, the municipal coin has the specific characteristic of being a reward digital coin, making the citizens earn this coin whenever they practice acts considered positive to the city, contributing to form the citizen politically active, in accordance with the respective dissemination programs.

The implementation of a *city coin* in the city of Vienna have been developed by the municipality government together with the Vienna University of Economics and Business⁸. It is a coin based on incentives: it would be conceded in exchange of *feedbacks* about the city or reward to the

³The Libra is a digital coin from the *Facebook* network based on *blockchain* and convertible to fiat coin that has the goal to create a more inclusive and solid a financial system worldwide.

⁴ How Belfast Coin is defining a new trend to the regional digital coin, 2019. Available in: <<https://coinrivet.com/pt/how-belfast-coin-is-setting-a-new-trend-for-regional-digital-currency/>>. Access on: February 19th, 2020. Belfast Coin to become region's first digital currency. Belfast City Coin, 2019. Available in: <<https://www.belfastcity.gov.uk/news/belfast-coin-to-become-region%E2%80%99s-first-digital-curr>>. Access on: February 19th, 2020.

⁵ Austria capitol is considering the “Vienna Token” as a system of urban reward. Coin Telegraph, 2018. Available in: <https://de.cointelegraph.com/news/osterreichs-hauptstadt-erwagt-wien-token-als-stadtisches-belohnungssystem?_ga=2.175087458.135816231.1582165329-1914741858.1582165329>. Access on: February 19th, 2020.

⁶ Municipal Crypto Spreading Around the World, From California to Dubai. Coin Telegraph, 2019. Available in: <<https://cointelegraph.com/news/municipal-crypto-spreading-around-the-world-from-california-to-dubai>>. Access on: February 19th, 2020.

⁷According to Tuba Bakici, Steve Almirall and Jonathan Wareham, the term was mentioned for the first time around the 1990s. According to these authors, the expression smart city, that doesn't have a pacific definition, can be understood as: “a high-tech intensive and an advanced city that connects people, information and city elements using new technologies in order to create a sustainable, greener city, competitive and innovative commerce and a recuperating life quality”. (2013, p. 139).

⁸Vienna develops reward token for citizens in partnership with university. Coin Telegraph, 2019. Available in: <<https://cointelegraph.com.br/news/austrian-capital-vienna-develops-reward-token-for-citizens-in-partnership-with-university>>. Access on: June 27th, 2020.



citizens for using their bicycles. The coin in question could be easily traded for products and services, like for instance, theater tickets and payment of public parking lots, besides using the *blockchain* technology.⁹

According to Shermin Voshmgir, the head of the Research Institute for Cryptoeconomics, “we are in a very early design phase in which we are considering together with the City of Vienna what such a Vienna token could look like. It’s about understanding how we can generate a token that adds value for the city”⁹.

In the city of Tel Aviv, the implementation of its *city coin* was divided in two phases. On the first one, the main goal of the action consisted of stimulating the commerce on the most vulnerable areas of the city, being used on shortlisted establishments. Through the utilization of an application called Colu, it is guaranteed the reward of 25 digital coins (equivalent to 25 NIS) to the users that make 5 transactions of at least 20 NIS. On a second phase, the coin would be used to reward the use of public transport and the report of problems to the municipal service through number 106. The technology is managed by an Israeli private company, named Colu, whose application is used, currently, by ¼ of Tel Aviv’s population, even though *blockchain* isn’t used¹⁰.

According to com Hila Oren, *CEO of Tel Aviv Foundation*, in an interview published by Cities of the Future, on December 5th, 2019:

You can use this coin to pay in different shops specifically in an area where there is a [financial] shock, and they needed that support. As a result, after three months of a specific campaign, 100 business joined and really, instead of going into bankruptcy, it gives them oxygen, and 4000 people from that neighborhood used it and gave testimonies of success”¹¹.

To Efrat Makin-Knafo, chief resilience officer, municipality of Tel Aviv, in interview to the website Smart Cities World, published on May 16th, 2019, “as a member of the 100 Resilient Cities network, we have chosen a local currency as one way to strengthen our urban resilience, which in

⁹Vienna develops reward token for citizens in partnership with university. Coin Telegraph, 2019. Available in: <<https://cointelegraph.com.br/news/austrian-capital-vienna-develops-reward-token-for-citizens-in-partnership-with-university>>. Access on: June 27th, 2020.

¹⁰Tel Aviv launches digital city currency pilot. Smart Cities World, 2019. Available in: <<https://www.smartcitiesworld.net/news/news/tel-aviv-launches-digital-city-currency-pilot-4185>>. Access on: June 27th, 2020.

¹¹Tel Aviv, one of the early recipients of the Smart City Award, has expanded its leadership with the introduction of new tools, such as the new “City Coin”. Cities of the Future, 2020. Available in: <<https://citiesofthefuture.eu/tel-aviv-foundation-ceo-shares-her-view-of-what-makes-a-smart-city/>>. Access on: June 27th, 2020.

practice means reducing the cost of living, increasing social responsibility, civic identity and strengthening the local economy”¹².

Another example is the city of Seoul. In this model, the residents can also receive S-coins as rewards. Services that generate S-coins, in a first moment, include the payment of tributes, the provision of relevant information to the City Hall, the participation on public forums of the city’s interest and the answers to opinion polls. In regard to the use of the coin, the residents of Seoul will be able to use their S-coins to the use of public services, including transports. The *city coin* in question will be integrated to the ZeroPay system, a system based on the utilization of QR-codes that enables the citizens to pay for goods and services in the city using their phones. The S-coin is the main city’s bet to transform Seoul on the first *smart city* of the Asian continent.

It is important to highlight that the S-coin uses the *blockchain* technology, what according to Seoul’s mayor, Park Won-Soon, is part of a plan of stimulus to the development of this technology in the municipality. In an interview to the website Coindesk, published on April 2nd, 2018, he said that: “As Seoul is the world's leading city in the field of information and communications, including the Fourth Industrial Revolution, I think we should study new technologies such as blockchains”¹³.

Based on those examples that are verified on international experience, follows frame below summarizing the main characteristics of the reward *city coins* developed in the cities of Belfast, Seoul, Tel Aviv e Vienna.

¹²Tel Aviv launches digital city currency pilot. Smart Cities World, 2019. Available in: <<https://www.smartcitiesworld.net/news/news/tel-aviv-launches-digital-city-currency-pilot-4185>>. Access on: June 27th, 2020.

¹³South Korea’s Capital Is Planning to Launch Its Own Cryptocurrency. Coin Desk, 2018. Available in: <<https://www.coindesk.com/south-koreas-capital-is-planning-to-launch-its-own-cryptocurrency>>. Access on: June 27th, 2020.

REWARD CITY COINS ON THE INTERNATIONAL EXPERIENCE					
COUNTRY OF ORIGIN	CURRENCY NAME	HOW TO EARN	WHERE TO SPEND	USES BLOCKCHAIN TECHNOLOGY	OBJECTIVE
Belfast	Belfast Coin	* Recycling; * Consumption on local establishments; * Participation in voluntary actions; * Participation in civic activities.	* Can be used in shortlisted establishments.	No	* To encourage local commerce; * To encourage environmentally sustainable practices; * To encourage citizenship.
Seoul	S-Coin	* Payment of tributes; * Provision of relevant information to the City Hall; * Participation in public forums of the city's interest; * Answers to opinion polls.	* Public services, including transport.	Yes	* To increase the tax collection; * To improve the planning of public services from the information received from the citizens; * To encourage citizenship.
Tel Aviv	Colu	* Rewards users of the Colu app that make 5 transactions of at least 20 NIS, with 25 digital coins, equivalent to 25 NIS.	* Can be used in shortlisted establishments.	No	* To encourage local commerce;
Vienna	Vienna Token	*Use of bicycles *Feedbacks about the city	* Products and services (e.g.: theater tickets and public parking lots)	Yes	* To improve the planning of public services from the information received from the citizens; * To encourage environmentally sustainable practices.

Elaborated by the author.

Presented the models above, it is possible to observe the expressive potential the *city coins* have to be used as instruments to the implementation of public policies efficiently, on the most diverse areas.



In Brazil, the closest there is to a *city coin* are the social coins, already widely used and accepted jurisprudentially, as demonstrated by the consolidated experience with the mumbuca coin, on the municipality of Maricá, in the state of Rio de Janeiro, instituted in 2013. In this scenario, it is worth of highlight, however, that the social coins aren't from the own municipality, i.e., are issued, in general, by non-profit community associations or cooperative banks, with the finality of social inclusion and economic development of determined communities (FREIRE, 2011, p. 93-94).

There was never, then, an effective Brazilian experience regarding a reward digital coin issued directly by the municipality, i.e., issued and controlled by the own municipal public power and used as a mean of retribution to the citizens for the practice of acts of relevant public value to the city. In 2019, the municipality of Porto Alegre¹⁴ initiated a project that seemed to go for that direction, but it wasn't concluded.

Therefore, facing the repercussion the reward digital coins have been gaining in the international experience and given the fact that they materialize an instrument capable of contributing effectively to increase que quality and efficiency of public policies in local ambit, it is important to analyze the legal aspects that inform the possible institution of a *city coin* in Brazil, overall concerning the constitutional grounds and limits to its implementation.

3 THE COMPETENCE OF THE UNION TO ISSUE MONEY ON BRAZILIAN LEGAL FRAMEWORK

The 1998 Brazilian Federal Constitution uses the expression “money” in four passages. The first one appears on subparagraph VII, from article 21, according to which it is attributed to the Union exclusive competence to “issue money”. Afterwards, on article 48, while addressing matters of competence of the National Congress, the Constitution determines, on its XIV subparagraph, that it is for the National Congress, with the sanction of the President of the Republic, to decide about “money, its limits of issuing, and amount of federal security debt”. The last two mentions to the term are found on article 164, on the following terms:

¹⁴Porto Alegre is the only city from Latin America with a selected project of its own digital currency. O Sul, 2019. Available in: <<https://www.osul.com.br/porto-alegre-e-a-unica-cidade-da-america-latina-com-um-projeto-de-moeda-digital-propria/>>. Access on: June 15th, 2020.



Art. 164. The competence of the Union to issue **money** will be exercised exclusively by the Central Bank.

§1º It is forbidden to the Central Bank to grant, direct or indirectly, loans to the National Treasury and to any agency or entity that isn't a financial institution.

§2º The Central Bank can buy and sell National Treasury's issue securities, aiming to regulate the **money** supply or the interest rate.

§3º The Union's available cash will be deposited on the Central Bank; the States', Federal District's, Municipalities' and agencies or entities of public power' and companies controlled by it, on official financial institutions, except for cases mentioned in law (our highlights).

From a literal analysis of the excerpts, two conclusions can be extracted: (i) the Union has exclusive competence to issue money; and (ii) this competence will be exercised exclusively by means of the Central Bank. However, as to be seen on the following lines, the comprehension of the constitutional provision in question isn't as simple as it may seem on a superficial analysis, needing further deepening to the grasp of its content. Thus, it is important to question initially what the sense of the expression money on the constitutional text is and if in fact, only the Union, through its Central Bank, has competence to its issuing.

N. Gregory Mankiw explains that among the economists the term money is comprehended as the “the set of assets in economy that people regularly use to buy goods and services from other people” (2009, p. 616) and proceeds clarifying that it isn't every type of wealth that can be called money. For example, a house, a car, are species of wealth, but aren't included on the concept of money for the fact they can't be easily used to buy goods and services, i.e., they wouldn't be promptly accepted on the market in exchange of goods and services. In this sense, elucidates an essential term to the comprehension of the concept of money: the liquidity. By liquidity is understood “the ease with which an asset can be converted to a means of exchange in economy. As the money is the means of exchange of economy, it is the most liquid of the available assets. The liquidity of the other assets varies a lot” (MANKIW, 2009, pg. 617).

Paul Krugman e Robin Wells argue that “An asset is liquid if it can be quickly converted into cash, without much loss of value, and it is illiquid if it cannot.” (2015, pg. 254).

However, it must be clarified: what makes money a liquid asset and accepted in a territory to the immediate acquisition of goods and services? Throughout history were used, as money, commodities with wide market acceptance, like salt, and afterwards metals, such as gold and silver. Those were called commodity money, whose acceptance as means of exchange depended on its intrinsic value. Nowadays, coins are accepted on a territory not anymore because of its intrinsic value, but because of the existence of a legal determination that compels its acceptance in a territory, i.e., because money is legal tender. According to Krugman e Wells:



A U.S. dollar bill isn't commodity money, and it isn't even commodity-backed. Its value arises entirely from the fact that it is generally accepted as a means of payment, a role that is ultimately decreed by the U.S. government. Money whose value derives entirely from its official status as a means of exchange is known as fiat money because it exists by government fiat, a historical term for a policy declared by a ruler. (2015, pg. 360).

On the same sense, Mankiw explains that "Money without intrinsic value is called fiat money. A fiat is an order or decree, and fiat money is established as money by government decree." (2009, pg. 617).

Fiat money is, then, the currency of legal tender, which in Brazil is Real, as provided on the Law n. 9.069 of June 29th, 1995, that established: "Art. 1 As of July 1st, 1994, the unity of the National Monetary System becomes the REAL (Law 8.880, article 2, of May 27th, 1994), that is legal tender on the whole national territory".

However, it will be verified that although all fiat money in circulation in the Brazilian territory is regulated by the Federal Government¹⁵, not all fiat currency is issued by the Central Bank. When the Federal Constitution determines that it is the Central Bank's exclusive competence to issue currency, it actually refers to a narrow concept of currency, a part of the fiat money in circulation in the Brazilian territory, which is paper money and metallic money. Only the latter are issued exclusively by the Central Bank, because, as will be better detailed in the following lines, financial and depository institutions also have the power to issue currency, through the multiplier effect of bank deposits. Not for another reason, Law 4595 of December 31, 1964, which regulates the powers of the National Monetary Council and the Central Bank of Brazil, establishes in its article 10, subparagraph I, that "Art. 10. It is privately incumbent upon the Central Bank of the Republic of Brazil: I - To issue paper money and metallic money, under the conditions and limits authorized by the National Monetary Council." It should be noted that the text of the law only refers to the issuance of paper and metallic money by the Central Bank of Brazil (BCB); there is no other passage in the text that attributes to the BCB the competence to issue any and all types of currency, except for the exercise of regulatory power, which is much broader and should apply to all forms of credit¹⁶.

¹⁵Article 22, Federal Constitution of 1988. It is the exclusive competence of the Union to legislate on: VI - monetary and measurement systems, securities and metal guarantees.

¹⁶Article 10, Law 4.595 of December 31, 1964. The Central Bank of the Republic of Brazil has exclusive competence to: VI - Exercise control over credit in all its forms.



From the above, there is a narrow and a broad concept of money. The Monetary and Financial Statistics Manual and Compilation Guide, published in 2016 by the IMF with the purpose of serving as a guide for the standardization of the presentation of accounts by countries, presents in chapter 6 a definition for what it calls broad money; however, in an introductory manner, it explains to the reader that money has four basic functions, namely to serve as: (i) medium of exchange, that is, it can be employed for the acquisition of non-financial assets (goods and commodities in general), services and financial assets, without the need to resort to barter; (ii) store of value, that is, it constitutes a means for storing accumulated wealth; (iii) unit of account, which means that it can be used as a standard to determine the prices of goods and services and the values of financial instruments and non-financial assets, thus providing a means of comparing values and for the preparation of financial statements; and, finally, (iv) standard of deferred payment, i.e., "a means for settling liabilities and, in this way, of relating current and future values in financial contracts".

In general, the economic literature refers to only three functions of money, being the last one pointed out by the Manual only an unfolding of the first one. Thus, N. Gregory Mankiw explains that "Money has three functions in the economy: It is a medium of exchange, a unit of account, and a store of value. These three functions together distinguish money from other assets in the economy, such as stocks, bonds, real estate, art, and even baseball cards." (2009, page 616). According to the author, "A medium of exchange is an item that buyers give to sellers when they purchase goods and services. [...], A unit of account is the yardstick people use to post prices and record debts [...] A store of value is an item that people can use to transfer purchasing power from the present to the future" (2009, pages 616-617).

Considering the presented money functions, the *Monetary and Financial Statistics Manual and Compilation Guide* (MFSM) defines money in its broad sense as:

6.11 Broad money is the sum of all liquid financial instruments held by money-holding sectors that are widely accepted in an economy as a medium of exchange, plus those that can be converted into a medium of exchange at short notice at, or close to, their full nominal value.

6.12 Broad money encompasses financial instruments that are media of exchange or close substitutes to media of exchange. For inclusion in broad money, it is necessary to evaluate the degree of moneyness of financial instruments, focusing on the extent to which each type of financial instrument provides liquidity and a store of nominal value. (2016, page 180)

It is important to note that the broad money concept presented by the MFSM does not establish a static, permanent list of financial instruments that should or should not be included in the broad money concept. On the contrary, it establishes that empirical tests should be performed over



time by the entities responsible for regulating monetary policy in order to establish the dividing line of the financial instruments that are or are not covered by the concept. In this regard, see MFSM topic 6.16:

6.16 The definition of broad money should be applied based on domestic circumstances. The instrument coverage of broad money can be informed by an empirical approach that considers the relationship between broad money, and real and other financial variables. Running empirical tests on different measures of broad money may be helpful in deciding where to draw the line, for example with reference to maturities of financial instruments to be included in broad money. Compilers should update these empirical tests as relationships can change over time.” (MFSM, 2016, page 181)

Brazil expressly adopted the definitions and concepts used in the MFSM/2016, as reported in the Technical Note of the Central Bank of Brazil number 48, published in November 2018, which established the Methodological Review of the Means of Payment Statistics. See:

Additionally, the new edition of the Monetary and Financial Statistics Manual and Compilation Guide (MFSM 2016), prepared by the International Monetary Fund (IMF) with the participation of member countries, including Brazil, was published in 2016. The MFSM 2016 establishes the international standard for the calculation of monetary aggregates. The new manual updated the concept of currency issuing and holding systems, creating the opportunity for the revision of monetary aggregates in Brazil. Finally, this revision allows the increase of consistency of the monetary aggregates statistics with the other official economic statistics of the country.

In this vein, Technical Note number 48 establishes the following entities as currency issuers in the country:

- a) Money issuers:
- monetary authority (Central Bank);
 - deposit companies (monetary and non-monetary); and
 - the Federal Government.

However, the TN number 48 does not expressly use the term broad money as used in the Manual. Instead, it adopts the expression "broad monetary aggregates" or "extended means of payment", to designate the financial instruments that make up the national monetary base. This possibility is even suggested by the Manual itself:

6.77 Further, although this Manual recommends that compilers focus on broad money, it recognizes that economies may define a range of money aggregates that are usually named in a sequence as follows: M1, M2, M3, etc., with each broader aggregate subsuming the previous one (MFSM, 2016, page. 190).



In Brazil, the demonstration of monetary aggregates is done exactly as presented in the Manual, using a sequence that goes from M1 to M4, in which the financial instruments that make up the Brazilian monetary base are grouped in descending order of liquidity. According to the TN number 48, they are:

M1 = paper money held by the public + demand deposits, including Credit Unions;

M2 = M1 + savings deposits + private securities issued by depository financial institutions, including cooperatives;

M3 = M2 + depository investment fund shares + repo operations with public and private securities;

M4 = M3 + public securities issued by the Federal Government, acquired in outright operations.

Hence, from the analysis of the financial instruments that make up the national monetary base and the entities that issue currency, as foreseen in the TN number 48, it is possible to verify the amplitude of the concept of money adopted in Brazil, which, as exposed, goes far beyond the concept of paper money or metallic money, issued by the Brazilian Central Bank.

In this line, it is important to clarify that the financial institutions and deposit companies that have the power to issue sovereign currency do not do so autonomously, i.e., independently of the issuance of metallic and paper money put into circulation by the Central Bank of Brazil. On the contrary, they do so by virtue of the multiplier effect¹⁷ of bank deposits, which does not generate a new currency, in the sense of creating a currency with a unit of account distinct from the sovereign currency. Thus, the currency issued by financial institutions is not autonomous, since it depends on the issuance of metallic and paper money issued by the Central Bank of Brazil.

¹⁷ "The creation of money by the action of the multiplier begins with the making of demand deposits by the public in financial institutions: the money of high purchasing power injected into the economy by the central bank tends to be transformed into deposits in banking institutions, for reasons of security and efficiency in the management of resources. Banks keep in cash or in accounts held at the central bank fractional reserves on the deposits received, as a matter of prudence or to comply with the regulations issued by the monetary authority. The amounts in excess of the retained portion can then be converted into loans granted by the banks to the public. Once loans have been granted on the basis of the funds collected in demand deposits, the corresponding amounts become the property of the borrowers without the depositors losing the right to withdraw their funds at any time, thus multiplying the means of payment. The mechanism repeats itself, as the amounts lent tend to become new deposits, which, with the exception of fractional reserve, can give originate new loans. The smaller the reserves held by banks, the greater the potential multiplier effect. The money created through the operation of the bank multiplier, of an intangible character, is usually called scriptural money". (COZER, 2006, pages. 31-32).

That being said, one can conclude that when the Federal Constitution attributes to the Union the exclusive competence to issue money in the national territory it is conferring on the central entity the exclusive competence to institute, by means of a Law, the fiat money, of legal tender, currency that will be compulsorily accepted as a means of payment throughout the national territory to settle obligations.

Such currency, when in the form of paper currency or metallic currency, will be mandatorily issued by the Central Bank of Brazil. However, when it adopts the form of any other extended means of payment, it may be issued by private entities (through the banking multiplier), in accordance with the guidelines formulated by the Central Bank of Brazil. It is also worth mentioning that most of the money in the National Financial System is concentrated not in the monetary aggregate M1, which is issued by the Central Bank, but in the monetary aggregates M2, M3 and M4, according to information that can be gathered from the Central Bank of Brazil's own website¹⁸.

4 AS MOEDAS DIGITAIS E O ORDENAMENTO CONSTITUCIONAL

In the memorandum no. 31,379, published on November 16th, 2017, by the Central Bank of Brazil, this entity emitted an alert to the market in order to expose the risks involved in operations with cryptocurrencies. In this document, highlights that virtual currencies "are neither issued nor guaranteed by any monetary authority, so they have no guarantee of conversion to sovereign currencies" and that "companies that trade or store so-called virtual currencies on behalf of users, natural or legal persons, are not regulated, authorized or supervised by the Central Bank of Brazil." Moreover, it states that "there is no specific provision about virtual currencies in the legal and regulatory framework related to the National Financial System. The Central Bank of Brazil, in particular, does not regulate or supervise operations with virtual currencies". Finally, it states in its points 7 and 8 that:

¹⁸As reported on the Brazilian Central Bank's website, in the fourth quarter of 2018, the balance of paper money held by the public reached R\$215.2 billion and demand deposits, R\$187.8 billion, registering respective growths of 7.2% and 6.5% over twelve months. The broader monetary aggregate (M4) totaled R\$6.7 trillion in December 2018, increasing 7.7% over twelve months (www.bcb.gov.br).



7. Although virtual currencies have been the subject of international debate and manifestations by monetary authorities and other public authorities, the need for regulation of these assets has not been identified to date by international organizations. In Brazil, for the time being, no relevant risks to the National Financial System have been observed. However, the Central Bank of Brazil remains attentive to the evolution of the use of virtual currencies, as well as following the discussions in international forums on the matter for the purpose of adopting eventual measures, if applicable, observing the attributions of the competent agencies and entities.

8. Lastly, the Central Bank of Brazil affirms its commitment to support financial innovations, including those based on new technologies that make the financial system safer and more efficient.

From the formulations put forth in the CBB memorandum, some conclusions can be drawn:

- (i) The issuance of virtual currencies by itself does not characterize an action that contradicts any legal rule, as the Central Bank expressly recognizes that "there is not, in the legal and regulatory framework related to the National Financial System, a specific provision on virtual currencies" and that "the need for regulation of these assets has not been identified, to date, by international organizations";
- (ii) Virtual currencies, according to the existing legal system and the current stage of development of these instruments, are not regulated by the Central Bank of Brazil, which is recognized by the statement that "the Central Bank of Brazil, in particular, does not regulate or supervise operations with virtual currencies".
- (iii) In consonance with what is stated in the memorandum, no relevant risks have been observed so far for the National Financial System as a result of the issue and execution of transactions involving virtual currencies, even affirming the institution's commitment to "support financial innovations, including those based on new technologies that make the financial system safer and more efficient".

The position expressed by the Central Bank of Brazil is in perfect alignment with the constitutional text, first because there is no rule contrary to the issuance of virtual currency, such activity is protected by the principle of free enterprise and the principle of freedom of association, both provided in the Federal Constitution of 1988, respectively in Articles 1, IV and 170, and in Article 5, XVII. Moreover, the right to freedom assured in a generic way in the caput of article 5 encompasses, in addition to the freedom of initiative and association, reaffirmed by the constitutional text, the freedom of contract, whose regulation is made at the level of civil law.

In this sense, the Brazilian Civil Code (Law no. 10,406/2002), as taught by Marusa Vasconcelos Freire when addressing the legal regime applicable to corporate currencies, disciplines atypical contracts and innominate credit instruments in the sense that they can be signed and created exclusively by the parties involved, regardless of whether there is a legal provision or not. According to the author:

As determined by article 425 of the mentioned law, "it is lawful for the parties to stipulate atypical contracts, observing the general rules established in this Code". Similarly, art. 903, provides that "unless otherwise provided by special law, credit titles are governed by the provisions of this Code" (2011, pg. 277).

In line with the above, the creation of virtual coins that do not expressly violate the rules of the established legal system is under the legal protection of atypical contracts and innominate credit instruments, regulated by means of the Civil Code.

Therefore, a limitation in the scope of the free initiative of digital currency issuers, in the sense of preventing the operation of this activity, is only justified if, and only if, its issuance will cause a serious compromise to the National Financial System¹⁹. Naturally, depending on the specific characteristics that they assume, digital currencies may be regulated by government entities, such as the Central Bank of Brazil and the Securities and Exchange Commission of Brazil, if they fall within the scope of their regulatory competence²⁰, mas, but, even in these cases, these entities are restricted to acting within the limits of their regulatory power.

¹⁹ According to Otavio Yazbek, the term Financial System refers to the set of interconnected relations and institutions, national financial complexes being understood as: "the regulatory structures that conform the market practices and the forms of organization and performance of those agents" (2007, pg. 175-176)

²⁰ For example, the Securities and Exchange Commission has published a document entitled Alert Series: cryptoassets, whereby it explains that: "what determines whether or not an ICO transaction will be subject to securities market regulation is the nature of the virtual assets issued in the transaction. If the rights characterize the asset as a security, the operation, issuers and other agents involved will be required to comply with the laws and regulations of the SEC.

Even if in the future it is proven that the National Financial System is compromised due to virtual coins, it is necessary to separate the wheat from the chaff, in the sense of removing from circulation, if necessary, only those that are effectively causing damage to the proper functioning of the system.

In any case, the position of the Central Bank of Brazil is correct, as has been the case in other countries, in the sense of keeping watch over the evolution of digital currencies and acting only when there is a need to do so. Although it seems a difficult scenario to be visualized in practice, given that such currencies do not have the attribute of legal tender, one should be alert to the possibility, albeit remote, that a de facto situation may arise in which a virtual currency, given the extent of its acceptance in the market and the volume of its use, will undermine the acceptance of the Real as a means of exchange in the national territory, thus compromising the Brazilian government's ability to regulate the National Financial System and act if necessary.

However, such monitoring should occur without preventing the evolution of digital coins, because it is possible that their issuance not only will not cause serious damage to the National Financial System but also contribute to its improvement, making it not only more efficient and secure, as the CBB itself mentions in its memorandum, but above all more inclusive.

Regarding the possibility of virtual currencies fitting into the concept of currency and harming the performance of Central Banks, the International Monetary Fund published a study through which it conducted a historical, economic and legal analysis of currency, with the aim of shedding light on this issue. From the historical point of view, it shows that until the mid 40's of the XX century, the central banks themselves were private entities that issued money, besides the existence of other currencies in circulation, without this compromising the balance of the market (2016, pg. 12).

When analyzing digital coins from an economic point of view, explains that they can only fit into the economic concept of money if they have all three functions (serving as a medium of exchange, store of value and unit of account). Points out that without the cloak of state protection, giving them legal tender status, virtual currencies can only be accepted if there is agreement of the parties involved in the legal transaction, and that despite their rapid growth, the volume of transactions in virtual currencies is still small. Thus, its operation as a means of payment is

Offerings of virtual assets that meet the definition of securities and are not in compliance with the regulations will be considered irregular and, as such, will be subject to the applicable sanctions and penalties. The SEC warns that, to date, no token offering whose rights characterize them as securities has been registered or exempted from registration" (2018, p. 04).



compromised. They have also not been successful in functioning as a store of value, due to their high volatility, and, lastly, they have failed to serve as a unit of account since establishments that accept to receive payments in virtual currencies in exchange for providing goods and services, in fact, quote prices in fiat currency based on the exchange rate of the day applicable to the virtual currency (2016, pg. 17).

Regarding its legal aspect, it should be noted at the outset that there is no unanimously accepted concept for the term money in the legal field, but that the following aspects should be observed:

The legal concept of currency is associated with the power of the sovereign to establish a legal framework that allows for the central issuance of banknotes and coins. Currency refers to the unit of account and the medium of exchange denominated by reference to that unit of account, prescribed by law. In the strict sense, currency refers to banknotes and coins issued by a central authority (e.g. the central bank) that has the exclusive right to do so. Currencies are given legal tender status according to the state's legal framework, which generally authorizes the obligor to fulfill monetary obligations with the currency through its compulsory acceptance in the relevant jurisdiction. As such, the value and credibility of a sovereign currency are intrinsically linked to the state's ability to support that currency.

The legal concept of currency is also based on the power of the state to regulate the monetary system. As a matter of law, the concept of money is broader than the concept of currency and includes not only notes and coins, but also certain types of assets or instruments that are readily convertible into such notes and coins (e.g. demand deposits). Although money can be created by private entities (e.g. banks) and central banks, it generally must be denominated in a currency issued by a sovereign authority and must serve as the generally accepted medium of exchange in that state (Procter 2012) (2016, pg. 16).

In the sense of the above, we conclude, with regard to virtual currencies issued by private entities, that, as long as they do not violate rules of the law and do not compromise the functioning of the National Financial System, they are valid under the legal system and are protected by the constitutional principles of free enterprise, free association, as well as by the right to freedom of contract



5 MUNICIPAL COMPETENCE FOR THE ISSUANCE OF *CITY COINS*

5.1 Preliminary aspects

As discussed in the previous topic, the right to issue digital coins, exercised by private entities, is based on the principle of free enterprise, free association and freedom of contract. Regarding municipalities, the constitutional grounds are different: the federative principle, or more specifically, one of its corollaries, the federative autonomy.

With regard to the constitutional limits for the exercise of this competence, there are also specific limits to be observed by municipal entities in comparison to private digital currencies. In line with the foregoing, the exercise of the right of freedom to issue digital currencies by private entities can occur if and only if it does not compromise the stability of the National Financial System, negatively affecting the Union's ability to regulate the monetary system, so as to effectively compromise the legal tender of the Brazilian Real in the national territory. The aforementioned limit must also be obeyed by the city coins, plus two others: not using their legislative autonomy to give legal tender status to the currency within their territory, and, respecting the scope of municipal competence outlined by the Federal Constitution.

That said, in section 5.2 it will be analyzed the issue of federative autonomy, which underlies the municipal competence to issue digital currencies, and, in section 5.3, the constitutional limits to be observed by municipalities in this matter.

It should be noted that, due to the number of formats that a *city coin* may take, the analysis of its adequacy to the constitutional framework will be based on the institution of a reward digital coin, a format that has stood out in the international experience, as mentioned in topic 2.

5.2 Federative autonomy, innovation and the competence of Brazilian Municipalities to issue digital currencies

The federative pact, embodied primarily in Article 1 of the current Federal Constitution and whose origin dates back to the proclamation of the Republic, imposes several characteristics on the state structure, among which can be mentioned the constitutional division of powers and the autonomy granted to the federative entities. The latter denotes the political-administrative decentralization of the State, which recognizes distinct federative units with their own competencies and attributions.



As a result of a process of re-democratization after the military regime and also due to the dissemination of an international tendency to value decentralization, the municipalities now have the aforementioned autonomy, given that these entities abandoned their previous status of municipalities to exist as federative entities as of the Federal Constitution of 1988, which is corroborated, for example, by reading articles 18 and 30 of the mentioned diploma. Municipal autonomy is so highly valued and protected by the current Constitution that one of the hypotheses for federal intervention in the States occurs precisely in the event of disrespect for the constitutional principle of municipal autonomy, as stated in article 34, VII, of the document in question.

In general lines, the autonomy now discussed mirrors the self-organization, self-government and self-administration capabilities of the federated units.²¹ Consequently, based on the Federal Constitution, municipalities can initially exercise the prerogative of self-government, which occurs, *verbi gratia*, through elections, by the local population, for the positions of mayor, deputy mayor and city councilors. They may also exercise self-administration, that is, these federative entities are assured the performance of the material competencies that are inherent to them, according to the constitutional distribution expressly outlined and also through the performance of attributions that are not prohibited by the Federal Constitution or the State Constitution. Finally, the Municipality is guaranteed the prerogative of self-organization, which is materialized with the elaboration of the Municipal Organic Law, added to the faculty of enacting municipal legislation, the latter perspective being called self-legislation.

Besides these aspects, it is important to emphasize how municipal autonomy allows for the exercise of pluralism and social diversity, so as to enable the spheres of local power to assume a peculiar identity resulting from their respective endogenous processes of formation and development. This is what Jair do Amaral Filho points out:

²¹On this subject, Luis Roberto Barroso teaches: "In summary, the characterization of the federal state involves the presence of three elements: a) the division of powers, through which each entity member of the Federation receives political powers exercisable in its own right, often classified into political-administrative, legislative and tax; b) the autonomy of each entity, classically described as the power of self-determination exercised within a circle pre-drawn by the Constitution, which ensures each state entity the power of self-organization, self-government and self-administration; and c) the participation in the formation of the will of the global entity, the national power, which traditionally occurs through the parity composition of the Federal Senate, where all states have equal representation". (Curso de Direito Constitucional Contemporâneo: Os conceitos fundamentais e a construção do novo modelo, 2019, p. 204).

Besides the operational aspect itself, which is at the root of the political question, the principle of autonomy also reflects a characteristic of the identity of each federated entity in the system as a whole, projecting a framework of territorial diversity and specific political cultures. This means to say that the national and sub-national instances should have their relative freedom to seek and forge their own cultural and economic identity respected, as well as the formulation of projects expressed through endogenous actors. It is necessary that the social actors, circumscribed to a territory, seek to satisfy the needs of feeling that they belong to a specific or desired society, containing a history, a culture, an expression (...) (2014, p. 310).

It is imperative to point out, however, that the theme of autonomy is not limited to the issues addressed in the previous paragraph. The institute requires a more detailed discussion of the different types of autonomy, among which are political autonomy, administrative autonomy and financial autonomy.

With regard to political autonomy, José Maurício Conti teaches that it is manifested by the provision, in the Federal Constitution itself, of the powers attributed to the decentralized entity. In this line, he teaches that:

Political autonomy can be seen *lato sensu*, including the powers to obtain resources and of self-organization. These last two items, however, will be considered as manifestations of financial autonomy and administrative autonomy, respectively. Thus, we can consider political autonomy *stricto sensu* as the competence to legislate, creating rules for certain subjects previously delimited in the Constitution; the competence to participate in the decisions of the Central Power, which will be seen below on the occasion of the analysis of one of the characteristics of federalism, which is precisely this participation in the decisions of the State; the delimitation of private competencies regarding the function of providing public goods and services; and the existence of its own bodies, with which it will exercise the functions delimited to it by the Constitution (2001, pg. 13).

In turn, the administrative autonomy of the Municipality is materialized, for example, in the direct and indirect execution of public services and activities of relevant collective interest, in the local land management and even in the execution of public works. The financial autonomy, on its turn, becomes perceptible with the use, by the Municipality, of financial instruments that help it develop and materialize local interests, as it is possible to observe, for example, regarding municipal taxes, whose institution and collection is made directly by the Municipality, as authorized by the Federal Constitution. Besides this, the financial autonomy of the Municipality allows it to carry out credit operations and apply its resources according to the objectives and goals prioritized in its management, respecting the constitutional determinations.

Besides the understanding and identification of the administrative and financial autonomy of the Municipalities, it is essential to scrutinize the interdependence of such institutes, a circumstance that is of equal or greater relevance. This is because the granting of administrative autonomy to a municipality, especially with regard to the provision of public services and activities of relevant collective interest, requires that the same entity be granted financial autonomy, so that it has its own resources to fund the activities within its competence in an independent manner, that is, without being excessively subordinated to the need to transfer federal or state resources. In other words, administrative autonomy is necessarily and compulsorily associated with financial autonomy, the latter being a *conditio sine qua non* for the exercise of the former. In this sense, the position of Hely Lopes Meirelles, in emphasizing the importance of the conjugated application of these two types of autonomy:

In fact, political autonomy and administrative autonomy would be inexpressive without its own resources to guarantee the execution of works and the maintenance of local public services. It would be a chimera to attribute self-government to the Municipality without giving it adequate income to execute the services necessary to its progress (2006. p. 112).

Moreover, it is worth noting that, in general, the federative entity with the best conditions for the implementation of public policies of local scope is precisely the Municipality, due to its proximity to the end users and the circumscription of its area of action, which allows it greater specialization in the organization of these policies. Thus, administrative and financial autonomy becomes a tool of even greater magnitude, since it supports the materialization and realization of local interests with excellence, functioning, ultimately, as a mechanism for institutional strengthening of the Municipality. In this context, Ângela Moulin states:

The financial autonomy of municipalities is a necessary, though not sufficient, condition for the local public power to experience the decentralization of public policies as a political strengthening of its condition as a federative entity, and not only as an executor of policies formulated and financed at the state or federal levels of government (2017. p. 126).

With regard to municipal administrative autonomy, it is in the scope of this to elect and execute the most adequate local public policies, being important its decentralization process, with the purpose of attending in a qualitative and meticulous way the peculiarities of the Municipality. Considering that Brazil adopts a cooperative federalism, with a large set of common and concurrent powers exercised jointly by all the federative entities, the mere obedience to the central *modus operandi* and to the public policies formulated and financed by the federal or state public power

leaves much to be desired in terms of efficiency in meeting the most particular and extraordinary interests of the municipal population, subverting fundamental objectives of the Federative Republic of Brazil, such as the one that determines the reduction of social and regional inequalities.

As Maria Coeli Simões Pires states, it is indispensable to break with the accentuated central imposition of a hegemonic reference model:

Indeed, it is necessary to break with the dictatorship of symmetries and management models. As cities, due to their immanent reality, invoke the principle of diversity, local power must take on its own conformation and content, in each space, as the cities and populations are different, and their actors and interlocutors must be different, as must their forms of acting and understanding the experiences that take place there. (2000, p. 219).

It is worth adding that the inevitability of this process is even more evident when faced with the modernization and complexification of today's society. With technological progress and the diversification of the market and of social needs and interests, the actions of local governments tend to be simultaneously renewed in order to better meet nowadays expectations. It is indispensable, therefore, to redefine the very concept of autonomy, which should evolve in order to follow this development, providing the municipalities with a more energetic, capillary and innovative administration. In the words of the Brazilian constitutionalist José Alfredo de Oliveira Baracho:

The decentralization at this level should be a stimulus to freedoms, creativity, initiatives and the vitality of the diverse legalities, fostering new kinds of growth and social improvements. Central bureaucracies, with authoritarian tendencies, are often opposed to decentralizing measures, going against the attributions of society and local governments. The best climate for relations between citizens and authorities must begin in the municipalities, aiming at reciprocal knowledge, facilitating the diagnosis of social problems and the motivated and responsible participation of social groups in the solution of problems, generating trust and credibility (1996, p. 19).

It is in this context that Oliveira Baracho discusses the so-called principle of subsidiarity, widely addressed by national and international doctrines, especially in the European Union. This principle determines that the state will intervene only in a subsidiary and supplementary way, with the objective of remediating dysfunctions and shortcomings presented by society.

In federalism, we can see a specific interface of the principle of subsidiarity: the one that imposes respect for the decision-making sphere of smaller federative entities. In this sense, as Maria Coeli Simões Pires (2000, p. 215) explains, when faced with a local interest, the Municipality should be the first entity called upon to carry out a certain conduct, and the States, the federative entities with the greatest reach, should only be called upon to act when it is impossible for the Municipality to take a certain measure. Following the same logic, the Union would only be requested to react if the dispute to be solved transcended the municipal and state spheres, in such a way as to make an action at the national level unavoidable.

The doctrine usually divides the principle of subsidiarity into vertical and horizontal, vertical subsidiarity being precisely related to the relationship between smaller and larger entities. As described by Thais Novaes Cavalcanti:

Vertical subsidiarity is related to the relations of the smaller entities (municipalities) with the larger entities (States and the federal Union), as well as between the international relations established by it. The principle of subsidiarity in this respect seeks to unite federalism and solidarity. In summary: more freedom of action for the smaller entities, more solidarity among the various entities. More efficiency and functionality in management and more collaboration in the relations between the various institutions. Also in this aspect, the principle of subsidiarity is related to a real fight against parasitism, against privileges, monopolies, corporations, misuse of public resources, and corruption. Vertical subsidiarity can be both ascending and descending, which means that all lower societies (municipality) make available all their capacity for the realization of the national and world common good, and the higher societies (Union) offer help to all societies which are within their sphere of competence (2009, p. 268).

Even though there is no express constitutional provision for the principle of subsidiarity, for jurists such as Marçal Justen Filho, to speak of subsidiarity and, consequently, to define the competence of an entity to act in a certain circumstance is associated with the ideal of efficiency itself, embodied in article 37 of the Federal Constitution, which brings the principles applicable to the Public Administration. As verbalized by Marçal:

In short, the core of the concept of subsidiarity lies in efficiency. The determination of the ownership of the competence, in matters of common interest, depends on the evaluation of efficiency. The political orbit that is in a position to adopt the most satisfactory solution, from a concrete point of view, will be the holder of the legal competence to act. Therefore, in the field of common competencies, it is impossible to establish an abstract rule about competencies, but it is imposed the duty to examine the circumstances of the concrete case and verify not only legal, but also political, economic and social aspects (1999, p. 83-84).



Given the above, revisiting the concept of autonomy and effectively favoring it in the local federative spheres, following a logic of subsidiarity, is to contribute to the observance of the constitutional principle of efficiency in the scope of local public administration.

Moreover, aligned to this logic of greater efficiency of policies developed at local level, is the institutional experimentalism, a theoretical current that has as one of its precursors the jurist Roberto Mangabeira Unger, who discusses precisely the importance of viewing the states and municipalities as "innovation laboratories", in which a certain institutional arrangement is tried out, which, even if divergent from the arrangement imposed by the central body, may later become a central model of reference and modernization on a larger scale. For the author, among the guidelines necessary to build a more prosperous and effective democracy, it would be necessary to rethink the extremely rigid division of powers, in order to allow the federative entities to experience and share divergent experiences that provide the discovery of an ideal management model:

The third guideline is the radicalization of the experimental potential of the federal regime. To achieve this, it is necessary to overcome the contradiction in classic federalism between its experimentalist doctrine and its institutional framework, which suppresses the potential experimentalism of the regime by insisting on a rigid distribution of competences among the three levels of the federation. The first step is to make federalism more flexible. It is not enough to have common or concurrent competencies; it is necessary to organize a cooperative federalism that facilitates joint initiatives and shared experiments by the Union, the states and the municipalities. And the second step - a more radical one - is to break with the principle that all localities must enjoy a uniform degree of right of divergence. If we want to stimulate parts of the federation or even sectors of society and the economy to build counter-models in which society can envision another image of its future, we need to allow that divergence in one place can be radical without all localities or all sectors always having to enjoy the same degree of freedom to diverge from central solutions (2011, p. 68).

In light of the above, it can be affirmed that the issue of digital currencies by the Municipalities, as a matter of eminently local interest, for which no competence is reserved to the Union or to the States, falls within the scope of their federative autonomy for the creation of more efficient management instruments, working, as in the expression used by Mangabeira Unger, as true innovation laboratories, whose obtained advances can, in the end, benefit both the other Municipalities of the federation, and promote improvements and advances in the scope of the States and the Union itself.



As analyzed in topic 1, reward digital coins follow a logic of enabling the citizens of a given city to enjoy services provided by the municipal government, such as access to museums, theaters, public parking lots, and public transportation, in exchange for the practice of actions capable of collaborating to improve the quality of life in the city, such as answering opinion polls, performing selective collection, shopping at local establishments, among others.

This way, the so-called digital coins, far from having the objective of functioning as an exchange mechanism, and therefore being closer to the concept of token, presented in topic 1, are in fact management instruments, which serve the function of optimizing public resources, conferring greater efficiency to public policies already exercised by the municipality, as well as serving as an instrument that induces positive behaviors for the local community.

5.3. Constitutional limits for the implementation of a *city coin* in Brazil

In topic 4, the legal limits for the issuance of digital coins by private entities were analyzed, arguing that the freedom to issue them can be exercised if such coins do not compromise the Union's ability to regulate the National Financial System or compromise the legal tender of the national currency. This same limit is imposed on digital currencies issued by municipal entities, which is why it will not be discussed again in this topic.

In addition, we will now discuss two other limits to which municipalities are subject to when issuing digital currencies: (i) respecting the scope of municipal competence established by the Federal Constitution and, (ii) not using their legislative autonomy to give legal tender status to currency within their territory.

5.3.1 Respect for the scope of municipal competence outlined in the Federal Constitution

Regarding the scope of municipal competence to be observed when issuing a *city coin*, based on article 30, I, of the Federal Constitution, it is up to the municipalities to legislate on matters of local interest. A city coin can only circulate within the strict limits of the municipal territory²² covered by this precept, especially when it is used for the purpose of developing and promoting local interests, which is in line with the ideals of identity and diversity mentioned above.

²² Unless there is a municipal consortium that enables its use beyond the limits of its territory.

When discussing, in topic 2, the city coins under development in the international context, it was noted that this is a public policy management instrument capable of acting in several areas, such as health, transportation, culture, environment, among others. Thus, when implementing a digital coin able to circulate in Brazilian cities, it should be noted whether the finalistic areas of action of the currency are consistent with the material powers attributed by the Federal Constitution to municipal entities.

By imagining their own local currency that, for example, can be earned in exchange for the performance of individual activity of selective collection, the common competence of municipalities to protect the environment and combat pollution, under the terms of art. 23, VI, of the Federal Constitution, comes into play. The aforementioned competencies are peacefully accepted in Brazilian jurisprudence, as verified from the following Extraordinary Appeal, judged in 2015 by the Federal Supreme Court:

The Municipality is competent to legislate on the environment with the Union and the State, within the limits of its local interest and as long as such regulation is in harmony with the discipline established by the other federated entities (art. 24, VI, c/c 30, I and II, of the CRFB). (RE 586.224, Reporting Justice Luiz Fux, j. 05/03/2015, DJE de 08/05/2015, Theme 145) (emphasis added).

One can also imagine a *city coin* being used as an instrument to foster the local economy, when, for example, one imagines a currency that can be spent in small establishments registered in a municipal system, with the objective of advertising and consequent increase in consumption in such enterprises, which already happens with the Colu, implemented in the city of Tel Aviv, as mentioned in this paper. We can see, in this case, yet another competence of the Municipality, this time to combat the causes of poverty and marginalization factors, exercising the social integration of disadvantaged sectors, as provided in art. 23, X, of the Federal Constitution. A similar example occurred recently in the city of Tenino²³, Washington, USA, as a way to encourage the recovery of local businesses due to the crisis caused by the pandemic of the new coronavirus.

Article 30, V, of the Federal Constitution, in turn, provides the competence of municipalities for the organization and direct or indirect provision of public services of local interest. Therefore, it is up to the municipal sphere to choose the most appropriate configuration for the provision of its public services and the consequent execution of its public policies. The jurisprudence is also

²³Why a small town in Washington is printing its own currency during the pandemic. The Hustle, 2020. Available in: <https://thehustle.co/covid19-local-currency-tenino-washington/?utm_source=nextdraft&utm_medium=email&fbclid=IwAR2PqGdNXxZs0ZvcbV8nDrxoMVEzO08u9eXqryHli_LTeCS2kbBTLjO4ym4>. Access on: June 17th, 2020.



pacifically positioned in this sense, as decided by the Federal Supreme Court in the Direct Action of Unconstitutionality No. 845:

The competence to organize public services of local interest is municipal, among which collective transportation (...). The provision of the Amapaense Constitution which guarantees the right to "half fare" to students, in municipal public transportation, exceeds local legislative competence. (ADI 845, Reporting Justice Eros Grau, j. 11/22/2007, DJE of 03/07/2008) (emphasis added)

Therefore, considering a local digital currency that can be used to improve local public services, such as, for example, when one imagines that such currency can be earned in satisfaction surveys about the quality of municipal public services, as in the experiences already discussed in topic 2, we have that the city coin is nothing more than an instrument inherent to the administrative autonomy of the Municipality, included in the scope of municipal competence to organize its services and public policies.

Moreover, other relevant activities can be encouraged with the use of a local digital currency, such as, for example, when one imagines the possibility of a Municipality offering its own local currencies as a reward for attending public hearings, in order to encourage the exercise of citizenship and increase collective dialogue and democratic participation.

That said, we conclude that the institution of a *city coin* under these conditions is also authorized within the exercise of municipal administrative autonomy, which should, in accordance with the principles of subsidiarity and efficiency, provide enough room for the Municipality to primarily and especially organize the exercise of its material powers so as to best serve the specific interests of its community.

5.3.2 Non-utilization of its legislative autonomy to grant legal tender status to currency within its territory

As federative entities, Brazilian municipalities are endowed with the capacities of self-government, self-administration and self-organization, the latter being inherent to the capacity of self-legislation. Through the exercise of their legislative competence, they can enforce laws and impose general conduct on citizens within their territory. When analyzing the legislative function exercised by the Municipalities, through its City Council and with the participation of the Mayor, José Afonso da Silva points out that "it is in the exercise of this function that it legislates on the matters



that fall under the competence of the Municipality. Through it, as everyone knows, municipal laws are established and the principle of legality to which the Administration is subjected is fulfilled in the local sphere." (2007, page. 646).

Moreover, in the exercise of their legislative power and respecting their scope of competence, the Municipalities must act autonomously and independently, without establishing any relationship of subordination between them and the Union or the States, in line with the federative principle

As explained in topic 3, the Union has exclusive competence to institute paper money and metallic money of legal tender in the Brazilian territory. In a judgment handed down on March 10, 2010, regarding Extraordinary Appeal 478.410 São Paulo, Minister Eros Grau, reporting justice for the case, spoke at length in his vote about the legal concept of currency and legal tender, in the following terms:

What enabled man to do without precious metals as an instrument of exchange was the normative institutionalization of the monetary unit, from which stems the circumstance that money is a word that only assumes meaning when used under certain legal norms, within the framework of a given system of positive law. If this reference [reference to legal norms] did not exist, promises of payment and payments would be meaningless sounds and gestures [...].

This is why the words "lira", "dollar", "mark", "real" only gain meaning when referred to norms integrated in a given legal system, which contemplates them as indicative of the monetary unit legally valid in the space covered by it. [...] legal tender - expresses the quality of liquid value of the currency, for which reason it cannot be refused. Legal tender ensures the currency's wide circulation and enforces its acceptance; hence its characterization as a means of payment. [...] The exclusivity of currency circulation is related to legal tender, which respects the monetary instrument while in circulation.

In line with what was exposed by the Minister, both the concepts of currency and legal tender are necessarily a construction of the Law, not having, therefore, any meaning outside a legal system capable of imposing such condition to currency.

It is in this sense that Law No. 10.192 of February 14, 2001, which provides on complementary measures to the Real Plan, determined in its article 1 that "Art. 1 The stipulations of payment of pecuniary obligations enforceable in the national territory shall be made in Real, at its nominal value".



It is, therefore, due to the legal tender status assigned to the Real by law that no establishment in the national territory may refuse to receive Brazilian fiat money as payment in consideration for goods and services provided. On the other hand, this does not mean that they are not free, by means of an agreement of will between the parties involved in the legal business, to agree on payment in a particular digital currency. What the legal system prohibits is that an establishment refuses to receive the Real as a means of payment for the goods and services it provides, however, if one or another establishment accepts, by mere willingness, next to the Real, to receive payment in digital currency, there is, in this case, no violation of the legal tender of the national currency.

Furthermore, it is worth noting that digital coins have been classified by the Central Bank of Brazil²⁴, in alignment with international practice, as non-financial assets produced, that is, in their current stage of development they do not even fit into the concept of financial instrument, and therefore, far less of money, therefore equivalent to goods produced by human ingenuity. Thus, the acceptance of a digital currency by an establishment would be equivalent to an exchange of goods, and not the receipt of a payment in money in return for a good.

This way, the institutional design conferred by the Municipality to a *city coin* it issues must respect the Union's exclusive competence to issue paper and metallic money with legal tender status, in line with what was discussed in topic 3 of this paper. Therefore, a municipal law that creates a digital coin cannot, for example, impose that the payment of municipal taxes be made exclusively by means of its municipal digital coin or, for example, compel establishments located in the Municipality to receive its *city coin* as the only valid means of payment. It should be noted that, in the latter case, even if establishments were allowed to receive the Real instead of the municipal digital currency, the creation of an obligation to receive the local coin as a means of payment would violate the Union's exclusive constitutional competence. What would be lawful for the Municipality to establish, as Tel Aviv did, would be to authorize the establishments located in its territory to accept to receive the municipal currency by mere willingness, on an optional basis, i.e., without a municipal law imposing such behavior.

It is true, then, that the institutional design given to the currency can generate more or less questions about its suitability for the legal system. Reward digital municipal coins, which have stood out in the international experience, are a good example of a format to be adopted by municipalities

²⁴As stated in a Note to the Press, published by the Central Bank of Brazil, on August 26, 2019.



because they largely differ from the concept of money, not only from the legal concept, given that in none of the cases does the municipality compel its receipt so as to create a kind of municipal legal tender, but they are not even close to the economic concept of money, for which they would need to function as a means of payment, store of value or unit of account.

The *city coins* of the cities of Seoul, Belfast, Tel Aviv and Vienna presented in topic 2 can only be used for the purposes predetermined by the municipality, which makes it impossible to consider them as a means of payment, i.e. they cannot be used as a means of exchange in general commerce.

Moreover, with regard to serving as a store of value, this would not be the case either, since a coin's ability to serve as a store of value is tied to an expectation that in the future it can meet its holder's needs in the market. As stated, the reward *city coins* do not lend themselves to be used freely in the market for the acquisition of goods and services, but only for purposes predetermined by the municipality, thus also compromising their ability to function as a store of value. Moreover, it is discussed in the context of projects involving city coins the possibility that such "coins" registered in the digital wallet of users have an expiration date, as occurs with airline miles, which would eliminate, therefore, an eventual possibility of functioning as a store of value.

Lastly, they are also not suitable to function as a unit of account, given their marginal use, in only one Municipality. This is confirmed by the fact that, due to the legal tender of the Real, all goods transacted in the market must be expressed in Real, therefore, the prices of goods and services transacted in the Municipality would necessarily continue to be fixed in Real, so that only in comparison to fiat currency would it be possible to establish the value of something in *city coins*.

We can see, then, that if regarding digital currencies whose format is similar to Bitcoin, created with the purpose of serving as a means of payment, the conclusion that has been reached is that even these do not even fit into the economic or legal concept of money, even less would municipal reward digital coins fit into such concepts, which are, in fact, public policy management instruments aimed at inducing positive behavior in society, true innovations that have been given the name of coins for mere convenience, because the expression has become popular in society.



CONCLUSION

For all the above reasons, the following conclusions are presented. First, it is important to understand that when dealing with the topic of money, it is essential to examine in what exact sense the expression in question is being used, because, as explained in topic 1, there is a wide variety of instruments currently considered as money, and the taxonomy of currencies significantly influences the application of the underlying rules and regulations.

As demonstrated in topic 2, it was found that even in the face of a number of digital currencies that have become notable because of their goal of functioning as a means of payment at the global level, there is an important range of digital currencies that have stood out due to a diametrically opposed factor: localism. Among these are *city coins*, digital currencies issued by municipalities, which have been seen as an important tool for the transformation of cities into *smart cities*. In cities such as Vienna, Seoul, Tel Aviv and Belfast, the city coin has the specific characteristic of being a reward digital coin, so that citizens earn these coins whenever they perform acts perceived as positive for the city, contributing to form the politically active citizen.

It is precisely in this vein that we conclude, in topic 3, that when the Federal Constitution granted the Union exclusive competence to issue currency in the national territory, it actually granted exclusive competence to institute, by law, fiat money of legal tender, that is, money that will be compulsorily accepted as a means of payment throughout the national territory to settle obligations. Only such currency, in the form of paper or metallic money, will be mandatorily issued by the Central Bank of Brazil. In this sense, municipalities may issue local digital currencies, as long as they do not use their self-legislation capacity to institute local forced money. In any case, the merely local scope of such currencies does not have the power to compromise the stability of the National Financial System.

The correctness of the aforementioned conclusions corroborates the deferential position of the Central Bank demonstrated in topic 4, in which it acknowledged that, in the legal and regulatory framework related to the National Financial System, there is no specific provision about virtual currencies, considering the current lack of regulation of these assets. The position expressed by the Central Bank of Brazil is in line with the Constitution, which does not provide for any specific prohibitive rule and enshrines values such as free enterprise and freedom of contract, from which it follows that such coins are valid before the legal system, at least as long as they do not violate rules of the law and do not compromise the operation of the National Financial System.



Finally, in topic 5, we conclude that the issuance of digital coins by municipalities is a theme of eminently local interest, inserted in the scope of their constitutionally provided autonomy for the creation of more efficient public management instruments, propitiating, as stated by Mangabeira Unger, that municipalities function as true innovation laboratories, whose obtained advances may, after all, inspire the other municipalities of the federation, and even the States and the Union.

In accordance with the municipal competencies set forth in the Constitution, and also in accordance with the principles of subsidiarity and efficiency, municipalities should exercise their material competencies in a way that best serves the interests of their local communities. The institution of *city coins* in Brazil, following the experience of several *smart cities* around the world, is one of the essential circumstances to this conjuncture. Initiatives such as this one are vital to the strengthening of ties between the municipality and residents and the arising of an optimized and inclusive municipal ecosystem.



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Sobre os autores:**Andressa Guimarães Torquato**

Professora Adjunta de Direito Financeiro da Universidade Federal Fluminense; Pós-doutorado em Economia pela Escola de Economia de São Paulo da Fundação Getúlio Vargas (EESP-FGV); Doutora em Direito Financeiro pela Faculdade de Direito da Universidade de São Paulo; Graduada em Direito pela Universidade Federal do Rio Grande do Norte.

Universidade Federal Fluminense - UFF, Niterói, RJ, Brasil

Lattes: <http://lattes.cnpq.br/0022426626370020> ORCID: <http://orcid.org/0000-0003-4839-2659>

E-mail: andressatorquato@hotmail.com

Annalice Oliveira Azevedo Baldini Figueira

Mestranda em Direito Constitucional pela Universidade Federal Fluminense (PPGDC-UFF) e Pós-Graduada em Direito Público pela PUC Minas. Possui bacharelado em Direito pela Universidade Federal Fluminense (UFF), Pólo Universitário de Volta Redonda (PUVR).

Universidade Federal Fluminense - UFF, Niterói, RJ, Brasil

Lattes: <http://lattes.cnpq.br/7441085103752683> ORCID: <https://orcid.org/0000-0002-1739-8647>

E-mail: annalice.baldini@outlook.com

Os autores contribuíram igualmente para a redação do artigo.

