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SUMARIO

A Sociology of Central Bank Digital Currencies: Digital Ruble, Trust, and Financialization of the Social Life (on the Example of Russian Small Entrepreneurs)*

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Abstract: This paper provides sociological account of central banks digital currencies (CBDCs), and digital ruble particularly. The development of digital economy stimulates active attention of governments of different countries. In some of them, including Russia, one of the reactions on these developments is the emergence of central banks digital currencies. From a sociological perspective, money is a social process embedded in social relations. One of the major aspects in this regard is trust. This paper analyzes the problem of trust on theoretical level as a systemic characteristic of social network enabling the shift from monetary mediums to money-as-account. The problem of trust touches the micro level of monetary proliferation. The paper, thus, discovers the narratives of trust, choice and enforcement using 12 interviews with small Russian entrepreneurs. It distinguishes between impersonal, technological, and institutional trust and shows discursive patterns among them. The results the paper presents are that at the level of narrative, technological optimism and skepticism could be distinguished in relation to the perception of possibility of enlarging institutional control. At the practical level, impersonal trust is identified as a major factor of digital ruble adoption. The findings of the paper fits with the literature on monetary proliferation and make a contribution to understanding patterns of new monetary forms adoption at the practical level.

Keywords: Central Bank; Digital Currencies; Trust; Financialization; Digitalization; Banks; Sociology of Money.

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* The format of this text is not as a usual empirical paper: research question – design and methods – results. Instead, the idea of this paper is to write a more theoretical text using empirical evidence including those gathered by the author. Therefore, the description of sampling and respondents will appear in the appendix. The genre of this text could be formulated as theoretical reflections on a new empirical phenomenon from the point of view of a relatively nascent conceptual field. However, this work is vital for the development of the topic and the field of sociology of (digital) money in general. I would like to say thank you to Dmitry Gorin, Simone Polillo, and Natalie Aviles for reading earlier versions of this paper at different stages of the project and their meaningful comments. I am also grateful to Manuel Nunez Garcia and the editors of this special issue for offering an opportunity to be part of this ambitious project and their extraordinary patience. Last but not least, I am indebted to my respondents who agreed to discuss such a provocative topic in these hard times.

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Sociología de las monedas digitales de los bancos centrales: Rublo digital, confianza y financiarización de la vida social (a partir del ejemplo de los pequeños empresarios rusos)

Resumen: Este artículo presenta un análisis sociológico de las monedas digitales de los bancos centrales y, en particular, del rublo digital. El desarrollo de la economía digital estimula la atención activa de los gobiernos de diferentes países. En algunos de ellos, incluida Rusia, una de las reacciones a esta evolución ha sido la aparición de monedas digitales en los bancos centrales. Desde una perspectiva sociológica, el dinero es un proceso social integrado en las relaciones sociales. Uno de los principales aspectos a este respecto es la confianza. Este artículo analiza el problema de la confianza a nivel teórico como una característica sistémica de la red social que permite el paso de los medios monetarios al dinero como cuenta. El problema de la confianza afecta al nivel micro de la proliferación monetaria. Así pues, el artículo analiza las narrativas de la confianza, la elección y el cumplimiento utilizando 12 entrevistas con pequeños empresarios rusos. Distingue entre confianza impersonal, tecnológica e institucional y muestra patrones discursivos entre ellas. Los resultados que presenta el documento son que, en el plano de la narrativa, podrían distinguirse el optimismo y el escepticismo tecnológicos en relación con la percepción de la posibilidad de ampliar el control institucional. A nivel práctico, la confianza impersonal se identifica como un factor importante de la adopción del rublo digital. Las conclusiones del artículo encajan con la bibliografía sobre la proliferación monetaria y contribuyen a comprender las pautas de adopción de nuevas formas monetarias en la práctica.

Palabras clave: Banco Central; Monedas Digitales; Confianza; Financiarización; Digitalización; Bancos; Sociología del Dinero.

Introduction

Financialization, as it is put by Krippner, is a process of «the growing importance of financial activities as a source of profits in the economy» (Krippner, 2011: 27). There is another crucial dimension that is related to new financial activities and practices in contemporary society: the emergency of new forms of money. These forms could be used to make profits, as, for example, Bitcoin and cryptocurrencies and other innovations in finances (such as mortgage-backed securities). Although new autonomous monetary forms are actively evolving, authorities are also engaged in processes of monetary creation. One of the results of this engagement is the active development of central banks digital currencies (CBDCs). In some works, they are viewed as the state reaction to the emergence of cryptocurrencies (Barontini,

Holden, 2019). Although it is not rigorously correct to compare CBDCs and cryptocurrencies from the technological point of view, we argue that these forms of money do have the same social basis.

This paper aims to analyze CBDCs (with the example of digital ruble) as a social phenomenon and describe the social basis of their functioning. As Dodd argues with regards to cryptocurrencies, it is not technology that make it socially widespread, but trust in the social network of its users and an idea of cryptocurrencies itself (Dodd, 2017). Having said that, it is not the case that technology, in a broader understanding, is not important at all. All forms of money have a material basis: coins are made of metals, electronic money have an electronic referent to a banknote, cryptocurrencies are based on the blockchain technology. Sometimes the material basis is important in establishing trust in the form of money: take the representation of a king in the medieval times (Spang, 2015; Desan, 2017), the gold standard (Ho, 2021) or the blockchain technology (Dodd, 2017; Caliskan, 2023). All forms of money also undergo the process of social creation and reification, whether it is the state guaranteeing stability of currency, a bank which provide confidence that e-money will refer to the national currency, or technological basis of mining cryptocurrencies. The thing is: at the end of the day, all forms of money have to be socially accepted; the social network has to provide *trust* in money (Ingham, 2000; Dodd, 1997; Kinney, 2021; Caliskan, 2023). I argue that impersonal trust is the component of monetary systems which allows particular forms of money, or monetary mediums – such as CBDCs and cryptocurrencies – to not only act as a means of exchange but do it under the system of measurement of values, namely, money itself.

How this this type of trust could be created and established? There are different ways. Ingham argues that it is an authority who provide trust through credit: money is particularly recognizable when society accepts an idea that it will be used in the future (Ingham, 2004). For him, as well as other neochartalisis (See also Keynes, 1930; Knapp, 1924), this credit is in turn backed up by the fiscal authority, i.e. the budget of the state. So, the state and legitimacy play a crucial role in the process of monetary creation. On the contrary, Dodd underlines the ability of social groups to be mobilized «from the bottom» and create trust in money, as well as the importance of distributed trust within the social network of Bitcoin users (Dodd, 2005, 2017). Following Simmel (originally 1900; 2011 cited here), it is community that maintains the belief in money as the system of measurement; thus, different monetary systems have to be based not on authority but rather on trust (like local exchange trade systems: Dodd, 2014: 80-88).

CBDCs represents a new form of money mediums which attracts a broad interest of countries all over the world. In the process of emergence, it will face the problem of the creation of impersonal trust. Some countries have already launched their CBDCs (or experience last steps of the development of CBDCs: Sweden, Uruguay, Nigeria, and Jamaica among some examples). One of the examples matching this statement is digital ruble. On July 24, 2023, the Russian president has signed the law introducing digital ruble into the Russian economy (Law on Digital Ruble Adopted, 2023). Russia has become the twelfth country that has launched the CBDC (Central Bank Digital Currency Tracker, 2023). What is interesting, most countries pioneered CBDCs belongs to the so-called group of «developing countries.» Initially, the preparation of the launch of digital ruble was supposed to take more time. The accelerating introduction of digital ruble is partly related to the Russian-Ukrainian war and the following geopolitical issues, as well as economic sanctions which Russia has been experiencing since the start of the war. Potentially, digital ruble allows the government to control information on *every* economic transaction. From this perspective, the government will pursue its interest in stimulating business and the general public to use digital ruble. And this poses the problem of trust. How trust in digital ruble could be created within business and the public? And what is the relation between them and one in e-money and cash? Which particular mechanisms could be used by monetary authorities to make digital ruble widespread? And, more generally, what is the place of trust in the era of digital economy?

One particular aspect is worth to be discussed from the perspective of the creation of trust in CBDCs, that is, the relation between the Central and commercial banks. In some papers, it is argued that the state wants to play a more important role on the financial markets (Barontini, Holden, 2019). On the one hand, it is evident that governments of different countries are concerned about cryptocurrencies, because they could be used on illegal markets and generally are not under the state's control. On the other, electronic money that we use now is the money of commercial banks. It is also hard to control them in terms of taxes, and it is commercial banks who make profits from electronic money (not only by the difference between savings and loans, but also from financial services such as fees from acquiring). In this light, the emergence of CBDCs will strictly affect the relation between the Central and commercial banks. Last but not least, CBDCs are part of the digitalization of socio-economic relations. New technological solutions could open various unforeseen perspectives for changes in the architecture of markets (as new technological

innovations made possible to invent financial products that eventually shaped the financial crisis of 2008: Fligstein, 2021).

The article aims to analyze the problem of the creation of the social basis of functioning CBDCs. The main concept I will focus on is trust. In the first section, I will theoretically discuss trust and the problem of its creation with regards to CBDCs. In the next one, this problem will be analyzed from the perspective of the commercial-Central banks relationship in Russia. Using empirical evidence, I will outline how digital ruble is embedded in the architecture of the payment market in Russia. I am trying to identify the main mechanisms of how it could be implemented based on the interview with Russian small entrepreneurs who are in a close contact with the government, commercial banks and customers. I am going to trace the emergence of digital ruble within the existing connections between the main players in the market and focus on how the Central Bank can introduce digital ruble creating impersonal trust. In the last section, taking into consideration the topic of this special issue, I will reflect on the emergence of CBDCs in the context of financialization and outline a broader perspective from the critical position. If the Central Bank (read: the state) is becoming the dominant player in the financial market, it is likely that there will be more opportunities for the control for business and general public and evolvement of surveillance capitalism (Zuboff, 2019).

From monetary mediums to money: impersonal trust and market devices

I would like to start with the distinction which is quite familiar to the «new» sociology of money; that is, monetary mediums (particular forms of money) and money in general (money-of-account.) This distinction could be found in various theories of money, both contemporary and classic (Carruthers, Espeland, 1998; Dodd, 2007; Polillo, 2011; Dodd, 2014; Polillo, 2022). One of the first scholar who paid attention to this contradiction within economics was Keynes. In *A Treatise on Money* (1930) he provided the idea that *money as a system of account* in general is different from *money in particular forms,* which is used in economic exchanges. This analysis takes issue with the neoclassical monetary theory by Menger (1892) and Smith (2002) that attempts money as a universal interchangeable commodity deriving its value from inner properties. For Keynes, money is not a commodity, but rather credit backed up by the state's guarantee that money will be used in the future (Keynes, 1930).

Following Keynes, Ingham (1996, 2004) formulates this distinction in terms of money-of-account and money-stuff. He actually brings about an idea of impersonal trust (Ingham, 2000). Dodd also finds this opposition crucial for the

sociological analysis of money. «Money, wherever and whenever it is used, is not defined by its properties as a material object but by symbolic qualities generically linked to the ideal of unfettered empowerment» (Dodd, 1994: 154). In *The Social Life of Money* he argues, unlike many other scholars (See: Ingham, 1996), that even Marx put this contradiction at the hearth of money (Dodd, 2014: 51-88). In the new sociology of money there are attempts to analyze this distinction from, sometimes unexpected, philosophical positions (see Carruthers and Espeland (1998) for Wittgensteinian approach of language games and Ailon (2022) for the phenomenological analysis of the «double meaning of money»).

Why is it so important to distinct money in general and particular money forms? It is because without *the social basis* of functioning money in *general*, different forms of money would not be even recognized as a means of exchange. This actually means that the value of money comes from these social origins. The most abstract analysis of money from this point of view was thoroughly presented in *The Philosophy of Money* by Georg Simmel. He argues that money in abstract is system which allows people to compare values of different objects (Simmel, 2011). Like time and space for Kant, money is the condition of possibility for economic transactions for Simmel, not a simple means of exchange (Karatani, 2003). This is what actually makes money so important for the economic system.

One might ask what allows these particular forms of money to function as money in general? This is the problem I will focus on in this paper analyzing the example of the emergence of CBDCs. In our case, CBDCs are new monetary mediums or particular monetary forms that could be used in the exchange. These monetary mediums function as a *means of exchange* and are particular rather than general (Dodd, 2005, 2014). However, they act this way under the existing system of accounting values – money-of-account – that is, the national currency. This is the starting point to analyze CBDCs and its relation to other monies. The question, thus, could be formulated as follows: «How differentiated currencies are created within the same money-of-account, and under what conditions differentiated currencies impact the money-of-account» (Polillo, 2011: 443).

From this perspective, it is clear why one should not confuse CBDSs with cryptocurrencies: the former ones do not aim to be money-of-account, while the latter actually do. This contradiction shed light at why the state is concerned about cryptocurrencies: it does not want the other money-of-account to emerge alongside with the system of the national currency (Coleman, 1984). Introducing CBDCs, the state also solidifies its position in the financial mar-

ket on the other end of the loop: CBDCs allow the state to control economic transactions and provide an easy access to information on companies and individuals. Commercial banks are being displaced as a holder of personal accounts. They future role is at stake because they are supposed to be a pure intermediary between the Central Bank and users.

My theoretical argument here is that for modern forms of money it is *impersonal trust* that makes them socially accepted and provides the basis for particular monetary mediums to function as money: whether it is top-down in the case of CBDCs and other forms of national currencies, or bottom-up as it is for cryptocurrencies and systems without a particular authority (Polillo, 2011). It does not really matter whether it is the state ensuring a promise to pay in the future through credit or technology which backs up the creation of money. In this sense, the famous Simmel's formula «money is a claim upon society» should be understood as the «claim» for impersonal trust provided by the «society». This type of trust is «vital to the reproduction of monetary networks, to their continuity over time. It is an abstract property of those networks which is irreducible to economic reasoning structured around the rational pursuit of self-interest» (Dodd, 1997: 136).

In this approach, impersonal trust is understood as a crucial element of social organizations (Shapiro, 1987). Applied to money, trust maintains confidence that money will be used in the future and, ideally, save its value. When we come to buy something, we give money to a seller which she accepts because is sure that tomorrow it can be exchanged for something else, e.g. retains its value. Whichever argument stands before money – that is backed up by the gold standard on the blockchain technology – this is *society* which serves this promise to pay back (Spang, 2015)[1].

1 This poses the problem of monetary value. Monetary value is different from the value of commodities. When we say that money retains its purchasing power is to say that we can buy the same produce for the same price, thus, the problem of monetary value is the problem of prices and inflation. Monetary value also depends on the exchange rate between currencies or other monetary forms (like crypto), i.e., the problem of convertation. There is a well-known answer that *only* market defines prices and exchange rate (for the development of this argument in financial economics see: Polillo, 2020). From sociological perspective, this idea seems at least vulnerable. Apart from that it is not clear what market is, it is also hard to define empirical mechanisms of how it really defines prices. In some cases this can work, but overall prices are object of how firms define the situation based on production processes and the behaviour of their competitiors. The same is applicable to the exchange rate. Even if there are transactions on the market, political struggles over them usually make a difference. For example, restrictions established in Russia after the start of Russian-Ukrainian war made it tmpossible to buy dollars or euro for the «official» market rates. In its essence, «subjective» variables like trust and confidence in the future are usually involved in the creation and maintenance of monetary value since they work as a self-defeating prophecy. How society accepts the future of monetary value sometimes is more crucial than so-called «market.»

Hence, there is the problem of proliferation. Impersonal trust works as a self-defeating prophecy (Shapiro, 1987), and is performative (MacKenzie, Millo, 2003) for the proliferation of money: the more people use the form of money, the more attractive it becomes for others (Guseva, 2008). This is true for various forms of money: derivatives, mortgage-backed securities, cryptocurrencies, CBDCs and so on; it may also impact financial bubbles (Carruthers, 2008). When the form of money appears in society, the use of it is questionable, so it is necessary to establish secure devices like collateral, especially in personalized forms of debt (Polillo, 2022). But with time, «the tension between money as the most generalized means of accounting and exchange and money as the indicator of a personalized relationship of credit and debt is solved as a matter of routine» (Polillo, 2011). So, impersonal trust becomes a matter of everyday monetary practices accepted without the reflection. And one is not to confuse *impersonal* trust of the community in the acceptance of money in future to *institutional* trust in particular organizations which are in charge of monetary creation and regulation (Makarov, 2020). I am interested in this shift from money as a problematic concern, i.e., monetary medium, to the generalized and routinized social form of debt, i.e. money-of-account. I thus argue that identifying empirical ways of the creation of impersonal trust in the case of CBDCs helps understand this process better.

Therefore, the following features of *impersonal trust* applied to *monetary relations* could be distinguished:

- It appears in sutuations when it is impossible to establish connections embedded into *personal relations* (Shapiro, 1987; Granovetter, 1985);
- It deals with the fundamental uncertainty that monetary medium will serve as money *in the future* (Dodd, 1997; Ingham, 2000; Esposito, 2011);
- It consists of *promises to pay* which circulates on the everyday basis, and, therefore, becomes the form of *routinized debt* (Polillo, 2011; Graeber, 2011);
- It obtains *performative effect* with time and impacts the maintenance of monetary value and stability of monetary systems, as well as monetary crises if lacking trust.

In the case of CBDCs, it is vital to keep in mind that this is a matter of how these monetary mediums become everyday practices (e.g., money-of-account) through the creation and maintenance of impersonal trust. A peculiar feature of the construction of impersonal trust, especially applied to the Russian institutional unstable environment, is that it is likely to be done by means

of power or, how I call this, enforcement. Let me now turn to the discussion of the process of construction of impersonal trust regarding digital ruble.

Trust and enforcement: the case of digital ruble

The widely recognized and accepted among sociologists of money story about trust can undergo some changes in a new developing digital economy. Central Banks Digital Currencies can shed new light on these changes and developments. Moreover, digital ruble is evolving in the context of global changes, as Russia-Ukrainian war, the crisis of modernity and legitimation of capitalism, and the transformation of the latter itself. One way to look at this financial development is that the state strikes back for taking (or even returning back) the most important role in the payment market (Barontini and Holden, 2019). The development of surveillance capitalism marks that the new source of income is data (Zuboff, 2019).

The question could be asked: how data is controlled in the existing Russian payment market? On the one hand, like all over the world, commercial banks are responsible for operations with electronic money (Guseva, 2008). They control the payment infrastructure – mobile applications, POS terminals – and, therefore, control data over payments. For example, the Federal Law 115 establishes the legal way of providing information for the Central Bank or the government. This means that information on payments with electronic money is controlled by commercial banks and is not centralized for the purposes of conventionality of the Central Bank.

On the other hand, cryptocurrencies are globally emerging, and it seems like governments all over the world are concerned about this process. The Russian government's attitudes toward cryptocurrencies were changing over time: with the start of Russian-Ukrainian war and sanctions following[2], there were some debates about whether it is a good idea to use cryptocurrencies for some payments (especially for external trade). Then, this idea was forgotten, and the attitudes became directly opposite: cryptocurrencies are prohibited in Russia and their development is hardly possible. One can see several reasons for this: from the fact that cryptocurrencies are known to be used in illegal markets, to their very global and anti-state logic.

Be that as it may, the law introducing a new financial instrument – digital ruble – was adopted in June 2023 by the Russian president. Looking at the concept of digital ruble, differences with other payment forms could hardly be mentioned. The official paper depicts some positive and, at first glance,

2 As one effect of the sanctions, Russia was restricted to use the system of international payments SWIFT.

unimportant characteristics of digital ruble: for example, that it will increase velocity and allow people to pay offline (Digital Ruble, 2020). However, there are two features of digital ruble which are of our interest regarding the problem of trust creation.

First, digital ruble accounts are going to be located on the Central Bank infrastructure. All transactions are to be done within this centralized digital infrastructure. In recent years, the Russian government has implemented several ambiguous digital technologies, such as AI technology for facial recognition (Kosals, 2022) and the creation of united database of conscripts which could be used for implementing some real restrictions for them according to the new law (remember that Russian is officially in the state of emergency and partial mobilization). Given these facts, digital ruble could be logically viewed as a continuation of the development of surveillance *state*-capitalism in Russia. The institutional environment in Russia is peculiarly characterized by the close relationship between the state and big capital (Bessonova, 2018). Therefore, digital ruble means more control from the state for business and people. This also means that the state will play a more significant role on the payment market and new digital economy, where the new source of income becomes data (Zuboff, 2019; Caliskan, 2023).

Second, digital ruble will be based on the technology of so-called «smart contracts,» which are used in the cryptocurrencies (this is, perhaps, the main feature of digital ruble which makes it similar to the crypto technology). Smart contract means that there is a set of conditions for the transaction to be made (Caliskan, 2023). In other words, it is possible to buy one thing but not others. At this moment, it is hard to assess the possible extend of the application of smart contracts, but the thing is that this possibility exists, and the state will decide on this.

How is the story of digital ruble related to the problem of trust? I see a great contradiction which, potentially, can be viewed regarding different technological solutions implemented in the society. If I am right that at least one side of the story is to add more control and restrict people *freedom to choose*, then it poses an interesting question about trust. We usually say that we need trust when we make a decision: whether, for example, to open a company with this person, or to make savings in this form of money (say, dollar) and not the other. If people will be forced to use digital ruble and, moreover, if their transactions will be visible for the government, can we even talk about trust?

I would like to be clear and honest that this article will not provide ultimate answers for these questions. Indeed, we deal with not only a new phenomenon (digital ruble), but, probably, with an entire new set of social relations and

descriptive systems. Therefore, my further analysis will be inevitably exploratory and my goal in not to limit it to just answering questions; I think that at this stage of analysis posing a new question could be even more valuable than answering them.

It could be useful to think about trust in terms of the introduced distinction between money as generic systems and particular monetary mediums. Digital ruble will not establish a new monetary system, while as a new monetary medium it will engage into a broad digital architecture and bring about, as it is mentioned before, new surveillance characteristics. Therefore, functioning as a particular monetary medium, it will derive its stability and social acceptance from national currency – the generic money-as-account. In other words, it will function on the basis of impersonal trust as a systemic characteristic of the national currency system. It will be recognized as a national currency but is a new form. However, it will be different in *practice*. From the bottom the problem of impersonal trust will occur: in order for digital ruble to become widespread, it is necessary to create social basis, or community of trust; the form of trust we call impersonal. The means by which it will possibly be done could imply engaging other forms of trust (such as technological and institutional) and *enforcement* through governmental institutions.

While the question of how different forms of money get widespread and proliferate in society is considerably discussed in literature (Ingham, 2004; Polillo, 2011; Feinig, 2020), it remains underdeveloped how the decision is made at the micro level. According to practice theorists in sociology, the micro level constitutes the practical order of society (Giddens, 1986; Bourdieu, 1998). Global trends and macro mechanisms are visible at the practical level of social structure. Therefore, it is important to consider the problem of trust creation at the level of personal decisions and trust narratives. As sociologists, I believe that instead of analyzing particular individual choices as isolated, it is more important to look at discursive trends in choice, trust and enforcement. More important is not whether there is a choice in the reality (this reality will definitely «remain unknown»: Luhmann, 1995), but interpretation and narratives regarding this choice. According to Geertz, culture is public (Geertz, 2008), which means that it is possible to reach it by interpreting narratives and analyzing what is available for public view.

To reach these narratives and interpretations, I decided that the most productive way to do this is to choose *entrepreneurs* as research cite. Why them? They represent a vital group in the processes of monetary proliferation and emergence. First, they are responsible for providing supply of the monetary form. It is up to business to decide which form of money they decide to introduce

as a form of payment for a client. If their (entrepreneur's and client's) choices of payment fit each other, economists call this mechanism *matching* (Rysman, 2007). Thus, entrepreneurs are part of two-sided market. Second, structure of companies can be important in the proliferation of digital ruble. Like e-money in Russia, it is likely to be introduced via wage projects (Guseva, 2008). Third, and, probably, most important, is that small entrepreneurs at the micro level have flexibility of adoption: big companies are trapped from both sides – wage projects and customers – while small entrepreneurs have more agency to decide whether to adopt it or nor (Horne, Nickerson and DeFanti, 2015; Gunawan et al., 2019). Therefore, it is possible to analyze the problem of trust-enforcement.

In order to understand the dynamics of trust-enforcement and narratives of choice (as we saw, trust is particularly important when there is a room for choice), I have conducted interviews with 12 small Russian entrepreneurs. The results I am about to present should be regarded as preliminary since digital ruble is undergoing the state of its adoption and integration in the economy. Therefore, all aspects of digital ruble which were discussed with entrepreneurs were conditional in terms of their possibility. I used some coding techniques for analytical convenience, but I was mainly stick to the *discourse analysis* since my aim is to discover trust-enforcement narratives and meaningful mechanisms between them and, on the other hand, digital ruble adoption.

Regarding the specificity of Russian institutional sphere and government-business relations with generally high level of distrust (Avdeeva, 2019), the sample itself was dependent on trust from an interviewee to the interviewer. However, I would not talk about bias in this case: leaving the idea of statistical representation, I follow the Small's (2009) criterion of theoretical saturation and representation. Sampling was both convenient and snowball. While it is of course possible to continue interviewing and get new information (there is no 100% saturation in any case), data I have now is valid and sufficient for drawing a general picture. Given the novelty of the topic, it seems to be a good approach, especially when we empirically talk about early stages of digital ruble implementation. Two major criteria are important while sapling: (1) it is supposed to be a small business, and (2) there should be an experience in working with different payment systems. The latter is vital for showing a possibility of choice which implies variation in trust and opens a space for potential enforcement. All interviews were conducted by the author of this paper in Russian and then transcribed. All citations used here were translated into English by the author. Interviews lasted from 30 minutes to 2 hours. Names of informants are hidden due to confidential reasons. Information on respondents is provided in the Appendix 1.

Networks, institutions, and technology

Once we get close to the empirical level, what emerges is that three components are closely related to the story of digital ruble: networks, institutions, and technology. Our task in the last part of the paper is to describe how they are related to each other and trust, enforcement, and choice.

Networks, institutions, and technology are phenomena digital ruble is dependent from. It will be structurally embedded into networks of users with the effect of complementarity and matching; institutionally issued and governed by monetary authorities; and based on technological solutions which are described in relation to digital economy. At the level of practice, or particular decision-making and actions, we can distinguish set of attitudes towards these phenomena. It is likely that choice will be made on the basis of trust in all three aspects. This is reflected in the results of interviews.

I would think of the relation of these three parameters as of three different levels. Let me start with the level of technological trust where two groups of attitudes are emerged: technological optimists and pessimists. The central idea here is technological progress which is reflected as inevitable. However, the valuation of it is different. For example, one of my informants said: «Everything is changing so fast. It is not possible to stop developing when the whole world is moving forward … I am for constant development; our country is developing, and we all are going forward; therefore, I support development» (Interview 3). The other position on technological progress is more pessimistic.

However, the distinction on pessimist vs. optimists is not striking here. What is indeed surprising is the interpretative relation between technological and institutional trust. Both pessimists and optimists are neutral to technological progress: it is inevitable, and it is just happening. The difference is emerging in the interpretation of *possibility of control* from the government. What is interesting is that optimistic narrative tends to describe the governmental control as total. The same respondent during the interview has pointed out: «Everything is already under control … so it [digital ruble as a means to control enlargement] has not been relevant for a long time … all this monetary allocation and flows is just a drop in the ocean» (Interview 3). Everything is covered and transparent, so technology will not make the situation worse. At least technology can bring about more convenience. This is because this narrative is optimistic: technology bring some hope in the world where everything is under control and surveillance.

In contrast, skeptical narrative is such because it leaves some room for additional control. «Personally, there is some anxiety that the government will

be able to control all transactions … I don't know what policy our Central Bank will follow and so I would be very suspicious to adopt digital ruble» (Interview 1). Control here is dependent on such things as policy of the Central Bank. Not everything is under control, so digital ruble technologically could lead to more control, or to decrease it. Technological progress is inevitable, but politicians could act differently: in one narrative, they have some room for enlarging control; in the other, they do not.

Therefore, trust in technology (which is less pragmatic, but rather more general) is interpreted through the assessment of the possibility of enlarging control. It is not the technology itself (whether it is convenience or progress) but how it helps to control people what influence the difference in narratives.

At the level of practice, different aspects of trust are emerging. Look at the words of one of my informants: «From my point of view, I don't see any necessity to adopt [digital ruble] because our company is very small, and it will just bother me and my clients … These are extra troubles. It is very likely that it will be necessary to adopt new technological infrastructure and software … and it is also likely that it will lead to extra costs» (Interview 9). What becomes important here is costs and new software adoption. This is where we see the possibility of choice. Choice implies options, options imply assessment. Costs and infrastructure are among other important factors.

«I would start using it, if a situation forced me; whether my *partners* start using it, or *tax authorities* or *bank* force me to adopt it» (Interview 2). Monetary authorities represent institutional aspect here, but at a more practical level. They can enforce an entrepreneur to adopt digital ruble. This option does not imply any trust: regardless of whether you trust or distrust digital ruble, its technology, or institution, you will be forced without your will to adopt it. Power or enforcement leaves alone the necessity of trust in order to make an action (Luhmann, 2018).

What is interesting here is the effect of network of users. This is a point to stop here and analyze in detail. «I strongly depend on my *clients*. Reject one or two of them and they all will turn to a competitor. This is why if all my clients start to use digital ruble, then I must introduce this element to my business» (Interview 10). Clients and partners are two groups of people constituting the network on a two-sided market (Guseva, 2008). The effect of the network has been described in a more macro level (Armstrong, 2004; Rysman, 2007); however, I will provide evidence how it affects an individual decision.

The network is vital here because it reduces the space for choice but does not emerge as direct coercion. Once an entrepreneur sees that clients start asking for a possibility to pay with a new form of money, i.e. digital ruble, they

start thinking about adopting it in order to save their clients. The assessment is also affected by a vision of what the situation is with their competitors: if a client does not have a flexibility and convenience to pay whichever option they want, they may turn to competitors if the market is mature enough.

The type of trust which if enacted by the network is *impersonal*. It reflects the definition of impersonal trust I proposed earlier in this article. It is an element of a general social network. When this network of users becomes large, it means that the level impersonal trust in digital ruble is high enough. And that aspect becomes extremely important in relation to costs of infrastructure: a choice here is between costs of losing potential client or acquiring.

Existing acquiring conditions are not the best for entrepreneurs. In Russia, an average percent for acquiring per purchase is 2-3%. Moreover, commercial banks act in their interest providing additional restrictions. For example: «We worked with a bank with the acquiring system, we had the contract that clients of this bank had a discount of 10% working with my company. For clients, it was a great deal, but not for me. For me as an entrepreneur it was totally unprofitable, <…> I paid the bank a charge for the money came to me, as a result I have minus the discount and minus a commercial charge for the bank; and this was totally unprofitable! Now I understand this advertising where a person is crying and say: «Do not pay me with cards!» This is an absolute truth, I have had this experience for two years, when I rejected it. But for two years, I have been crying but tolerating» (Interview 7). Hence, the main choice an entrepreneur faces in this regard could be described as follows:

- some clients may turn to a competitor who offers a better payment option → profit loses due to losing clients OR
- adopt an analog of a POS terminal for digital ruble → profit loses due to the acquiring.

The network is enacted by means of impersonal trust in this network as a systemic characteristic. In narratives, it is related to the level of practice, which reflects the idea that impersonal trust is emerging as a matter of routine (Polillo, 2011). It is, however, not a positive attitude: business will hardly introduce digital ruble because they believe in it. Rather, they could decide that it is more rational for them to use digital ruble. The whole story is also embedded into institutional context of potential informational control and technological attitudes.

I therefore in a position to sum up my empirical findings with theoretical contribution in a model of digital ruble trust-enforcement associated with networks, institutions, and technology. Technology requires technological

trust with differences in a general attitude towards technology: there could be found optimistic and skeptical narratives about technology. These narratives, however, are different not because technology itself possess some good or bad elements; rather, it is possibility of enlarging control held by politicians and authorities. Institutional distrust is present in both discourses, but it matters more for technologically skeptical narrative because there is a space and freedom of action.

At the practical level, the discourse is shifted towards more concrete aspects such as costs and networks effects. Impersonal trust in network is vital at this level while deciding on digital ruble adoption. If institutional trust does not matter at this level due to possible enforcement from monetary authorities, the growing network of users is a strong argument for adopting a digital ruble because at one point the costs of joining the network could be lower than costs of acquiring. The following table presents three dimensions of digital ruble infrastructure and related to them trust, choice and enforcement.

Table 1. *Trust, choice, and enforcement in relation to networks, institutions, and technology of digital ruble*

	Trust	**Enforcement**	**Choice**
Network	Impersonal (clients and partners)	Indirect	Practical level
Institutions	Institutional (dis)trust	Direct	-
Technology	Technological (skepticism and optimism)	-	Attitude level

Conclusion

What this story about digital ruble and trust tells us? My empirical evidence combined with theoretical reflections on digital ruble and central bank digital currencies broadly shows how the process of digital ruble implementation could affect the dynamics of trust in money. We have started with posing a more general problem of the relation between money-as-account and monetary mediums. The means by which this relation is established at the theoretical level is impersonal trust: trust in a community of users as a systemic characteristic of network (Shapiro, 1997). Digital ruble is a good example for studying this problem because it is a new monetary medium.

More general picture on CBDCs is about the reaction of the state on the development of the digital economy. In different institutional contexts, this response could be different: while democratic countries are overwhelmed by public discussion of technological progress, development of platform economy, and how dangerous new technological innovations could be (Zuboff, 2019), more authoritarian regimes tend to enlarge control and use technology

in their interest (Kosals, 2022). This dilemma was once reflected by Marx in The Fragment on Machines in *The Grundrisse* (2005): technology will either save us by means of «general intelligence», or enslave us with totalitarian control in hands of politicians.

The topic of digital ruble emergence in general touches an enormous number of questions. One of them is the question of narratives of trust. The reaction of society on the implementation of digital ruble is important here. In order to understand these dynamics, this problem should be translated to the micro level related to an individual choice and trust-enforcement relations. Apart from just being in charge of supply for a form of money, small entrepreneurs have flexibility in their choice of its adoption; thus, the problem of trust matters in this case. If digital ruble indeed brings about more control and restricts freedom, the possibility of response shifts from public debates to the level of individual choice.

This possibility, however, is interpreted differently depending on a narrative. Technologically optimistic entrepreneurs do not believe in technology itself: this optimism is based on a belief that everything is under control. If it is true, then technology at least could improve life standards and make thing more convenient. At the level of practice, however, the narratives of trust are different. Impersonal trust matters here more than technological attitudes because the emerging network of users traps entrepreneurs from two sides: clients and competitors.

This whole story implies variation in the way new forms of money could emerge in societies depending on institutional environment. Despite the technological innovations and development of digital economy, our paper aimed to support the idea that money is a social process constantly undergoing changes in interpretations and attitudes (Dodd, 2014). Such fundamental problem as trust and its creation in networks of monetary users remains a relevant topic even with relation to digital economy development where everything seems automatized and inhuman (Dodd, 2017).

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Appendix: Characteristics of the Respondents

Number of Interview	Information on an Entrepreneur
Interview 1	m., 20 y.o., private tutor, Moscow
Interview 2	f., 48 y.o., law firm, Moscow
Interview 3	f., 42 y.o., accounting firm, Krasnodar
Interview 4	m., 55 y.o., manufacturing, Moscow
Interview 5	m., 61 y.o., manufacturing, Moscow
Interview 6	m., 52 y.o., music store, Nizhniy Novgorod
Interview 7	f., 43 y.o, advocate company, Moscow
Interview 8	f., 38 y.o., tailor shop, Moscow
Interview 9	m., 40 y.o., dental clinic, Moscow
Interview 10	m., 51 y.o., repair services, Moscow Region
Interview 11	f., 35 y.o., accounting firm, Saint-Petersburg
Interview 12	m., 59 y.o., local store owner, Moscow Region