

## **Currency in a Changing Technology Environment**

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### **Abstract**

This research's primary purpose focuses on exploring traditional currency's relevancy in the changing era of technology. During the 21<sup>st</sup> century, trends and developments highlight a paradigm shift away from centralized banking systems and towards distributed networking technologies that provide investors with secure ways to transact financial exchanges more privately. However, these developments also bring up fundamental questions to address from an analytical perspective in contemporary times. A comprehensive approach will be used in this study to make an educated determination on possible directions of currency as the 21<sup>st</sup> century progresses. It is a complex topic that intersects with many socio-cultural, political, and historical developments as well as economic issues. The level of involvement varies from one social group to the next, with parallel trends noted among researchers. While paper currency continues to be essential for many individuals and social groups, digital currencies are becoming more prevalent in some societies. Thus, the discussion will also review socio-cultural and political factors.

Keywords: digital currency, technological advances, currency, money

## INTRODUCTION

This research seeks to investigate the relevancy of currency in the changing era of technology. In the 21<sup>st</sup> century, there are many developments and trends on currency and how it will be used in the future. Thus, the main research question asks about these trends from various perspectives to make an educated determination on possible directions of currency as the 21<sup>st</sup> century progresses. How relevant will the currency be in the future? It is a complex topic that intersects with many socio-cultural, political, and historical developments as well as economic issues. In recent times, the digital currency has become an essential area of study due to the rapid growth of technology as it has progressed within a relatively short period (Yao, 2018). By comparison, traditional currencies in the form of minted coins and paper money date back several centuries, which is an essential area of historical study with many significant factors to consider.

Of particular interest in this research study, the socio-cultural and political factors involved with traditional currency will be reviewed as one way to understand the high level of attention drawn to digital currencies of the 21<sup>st</sup> century. It is still unclear how this new type of currency will develop throughout the central banking systems, if at all, or whether entirely different economic systems will become available due to technological advances on an international scale.

## DISCUSSION

The human ability and interest to trade and barter with one another is an established innate capacity—one that people are born with and show signs of exhibiting as early as the elementary school years (Brocas & Carillo, 2019). Humans need to learn how to trade effectively to enjoy a specific value's mutual benefits from a socio-cultural perspective. Whether these trading experiences involve food, clothing, products, and services necessary for survival, or are for entertainment purposes and many other human activities that add to the worth of social value, trading among people from various regions of the globe is common everywhere.

According to the findings of a study to determine whether these abilities are innate for human interactions, the researchers showed that most children between the ages of 5-8 were not yet familiar with any forms of economic exchange. However, they negotiated efficient trading practices through a "simple principle of double coincidence of needs" (Brocas & Carillo, 2019, p. i). This concept means that each of the young participants had a purposeful reason for establishing a form of barter exchange—one item of worth for another of equal value, chosen by the two or more children in the groups to achieve mutually beneficial results. Thus, the researchers concluded that young children have an intrinsic aptitude for organizing market exchanges (Brocas & Carillo, 2019). As an innate capacity that may even assure survival for the human species, groups of people must follow these social development patterns.

The study showed the importance of these socio-cultural and economic exchanges at its most basic level, which provides a strong motivation for continuing throughout the lifespan and does not only include young children by any means. Adults of all ages may respond favorably to similar, mutually beneficial economic exchanges. According to some economic researchers, the subject of tangible ways to transact these exchanges through a money system is somewhat ambiguous. The following description highlights this complicated situation in a candid manner: "Defining money is surprisingly difficult. We cut through the tangled historical and theoretical

debate to identify that anything widely accepted as payment, particularly by the government as payment of tax, is, to all intents and purpose, money” (Ryan-Collins, Greenham, Werner, & Jackson, 2012, p. 1). This explanation highlights the significance of national governments as they have developed throughout history. However, it also addresses humans’ ambivalence to agree to the terms of governmental policies and regulations. Heterodox economists explain economy as a “component of culture, or, more specifically, of the material life process of society” (Wray, 2012, p. 1). This explanation provides a framework of analysis for economic researchers to understand the institutional factors involved with money systems and the like.

Yet it is only one of many theoretical positions that economists may use to discuss the various aspects of currency as it has been developing within society over numerous centuries and the ups and downs of human civilization. In principle, it may seem reassuring or more practical for the governments that manage citizens’ needs and have a major say about their financial concerns. In practice, this form of financial management that continues to shape future economies’ direction is in question discussion’s core level. This key factor seems to have a significant position in most studies when economic researchers address the deeper meaning of current trends and development patterns as they are evolving in contemporary times.

In the 21<sup>st</sup> century, socio-cultural patterns and trends have been moving forward progressively to an increasingly significant level of connection with computer devices of all types. In particular, mobile devices that have become widely available and far more useful as various apps continue to emerge for users in their daily lives. In some cultures, these technological developments have completely replaced traditional forms of money exchange. For example, in China, the general population does not use any currency. Everything they do is through their mobile applications, which they learned through personal experiences.

While these practices are not yet entirely accepted in every region of the globe by any means, there are undoubtedly many indicators in society that point in a new direction. Traditional currency is still an accepted form of exchange globally, a critical factor that highlights the U.S. dollar’s dominant position, for one. According to one credible report, the U.S. dollar has retained a significant margin position as the world’s reserve currency: “over 60% of all countries (accounting for more than 70% of world GDP) use the U.S. dollar as their anchor currency” (Reinhart, 2017, para. 4). Yet the developing worldwide trends indicate that these traditional forms of currency may be changing dramatically as the 21<sup>st</sup> century progresses.

For these reasons, “R&D of digital fiat currency (DFC) has triggered interest among policymakers, regulators, the industrial community and the academia” (Yao, 2018, p. 1). The answers are not yet fully available, but the research questions have increased significantly within a relatively short period. Especially by comparison to its historical position, currency as a traditional form of exchange—that is, money that is minted through a central system and recognized as such, whether in coin or paper currency—could still be around several generations in the future. Future trends are certainly challenging to predict, which will most likely continue to be an essential area of discussion. In particular, as cryptocurrencies such as Bitcoin gain favor among investors around the globe, it has been predicted by some proponents of this economic practice that soon there may be no real need at all for traditional forms of currency.

In current times, people of all ages embraced the advances that have taken place within only a few decades, but perhaps most notably in the younger age groups. There are numerous examples of how computer technologies have almost entirely replaced outmoded forms of banking and other financial systems. As an outstanding example, there is full acceptance and use of daily electronic payments, while the frequency of using real money continues to gradually

decrease (Zhu & Li, 2019, p. 179). Yet these directional trends are still reasonably new. There are many questions that researchers, including the general public, are asking about the various types of economic patterns established in contemporary times.

One of the most notable shifts among investors has occurred as a result of Bitcoin blockchain technology. According to most accounts on the topic, the 2008 report on Bitcoin published by Satoshi Nakamoto was a dramatic turning point. Since that time, academic and industry leaders' attention gradually grew on the digital currency based on blockchain technology. (Zhu & Li, 2019, p. 179). Yet, there are still too few academic research studies on Bitcoin's subject and many other financial uses of this technological breakthrough that provide a comprehensive overview of its current usage and how digital currency will develop in the future. Will the traditional form of currency as practiced for many centuries be wholly replaced within only another few years? This question has a central position of importance in the study of economics and its socio-cultural effects.

In the year 2019, it was estimated with reasonable accuracy by an economic researcher with access to the available data that there were "more than 2100 cryptocurrencies, with a market capitalization of \$230 billion" (Aziz, 2019, p. 31). For the successful investors in the technological advances that made cryptocurrency possible, these developments may only be viewed positively. There certainly seem to be many benefits derived from this form of investment, as some financial experts will be quick to explain the debate's positive side.

Yet there are still some perplexing issues associated with the development of Bitcoin and other cryptocurrencies, as the following explanation clearly shows. The evolution of cryptocurrency on the legal side has not kept pace as numerous countries have banned it, while others struggle to understand and formulate policies (Aziz, 2019, p. 31). This key factor signifies that there will need to be a high level of academic research and scholarly knowledge about this subject to address these issues, particularly how government economies may be affected by these technological developments.

The explanation for one of the primary differences between traditional forms of currency and those represented by Bitcoin and other blockchain technologies is as follows: it has "shown itself independent of third-party institutions in terms of payment and settlement, and has is essentially a publicly available digital ledger maintained by the entire distributed network" (Zhu & Li, 2019, p. 179). Thus, it sets itself apart from traditionally established forms of currency exchanges intricately connected with central banking systems associated with governmental regulations and the like. There are many more questions to consider on the topic of digital currencies than only economic factors. Instead, academic researchers are exploring some of the social, political, and psychological dimensions of such a dramatic paradigm shift that seems to be occurring due to technological developments of the 21<sup>st</sup> century.

From this comprehensive approach of understanding, the question addresses the reasons for current economic trends and how these issues intersect with financial markets internationally. As there has been a "deep integration of finance and technology, the form of money is constantly changing" (Zhu & Li, 2019, p. 179). Although these developments are associated with the increasingly sophisticated technological advances of computers in the daily lives of people globally, there are some socio-cultural advances which have also progressed significantly in the 21<sup>st</sup> century. Researchers in economics, including the social sciences, continue to address the various issues occurring and computer technology advances.

## History of currency

The history of currency has an exciting role in understanding traditional monetary systems' relevance and their continued development in the future. While there are some variables to consider that show the direction of currency as the 21<sup>st</sup> century progresses, in many ways, it may depend on unknown factors. The trends of currency and technology are developing together in a parallel fashion to such the extent that the question has become an increasingly important one for business owners and the general public. However, these trends also highlight how more countries are adopting new policies about a more democratic monetary exchange system than has been in place traditionally. Thus, it appears to be an evolving process rather than one that is in a fixed system of economic, governmental rule.

As a fair exchange of value, the currency has been in use among humans for many centuries. According to historical accounts based on anthropological evidence as well as the traditional narrative of money passed down among generations, "individuals traded and bartered utilizing stones, beads, shells, and almost anything of perceived value" (Schulz, Riley, & Stoneman, 2018, p. 1). This key factor highlights the significance of cultural relativity since there may be one culture that perceives value in an item that another culture considers to be of no use whatsoever.

On the topic of coinage, the history of the first minted coins used as currency for value exchange seems to be a question of interest. According to one narrative, the world's first coins—made of either gold or silver--were minted by King Alyattes of Sardis, Lydia, around the year 610 B.C. (Schulz, Riley, & Stoneman, 2018). Since there are no actual coins discovered from that ancient era, this new currency method's historical narrative may be somewhat misleading. In another version of how currency began in the form of coinage, lumps of gold found in the rivers of western Turkey then melted down and "turned into pieces of uniform size imprinted with a stamp" (Velde, 1998, p. 2). This depiction almost reads like a fictional account of magic. Perhaps for ancient civilizations, it was an extraordinary event, at least, necessary enough to assure passing down these first developments of minting coins in historical records, either oral or written.

The main point to think about is that the idea of currency has been an essential aspect of human civilization for many centuries. From this perspective, there are numerous socio-cultural factors within the framework of analysis. On the topic of trading from one country to another, researchers note that "exchanging of one country's currency for another country's currency is as old as the currencies themselves" (Schulz, Riley, & Stoneman, 2018, p. 1). This factor may sound initially convoluted in terms of the complex developments of collaboration throughout history. Yet it highlights the long-held, established traditions about a currency that have a historical basis in socio-cultural, political, and economic issues between countries. Historically, archaeologists and other scholars determined that the world's first coins were made from either gold or silver and minted by King Alyattes of Sardis, Lydia, around the year 610 BC (Schulz, Riley, & Stoneman, 2018). From this historical position, it is evident that the use of a single national currency distinguished from other currencies was one way to express a particular culture--in ancient times, an expression of the form of government and other distinguishing features of the national identity.

At times, some might consider this type of expression of negative worth rather than a currency of value, as the following explanation shows. In ancient times, a primary purpose for minting coins of either gold or silver was because there was little dispute over the value of an

ounce of silver or gold, especially in comparison to the value of a “Roman coin that merely had the picture of an emperor stamped on it” (Schulz, Riley, & Stoneman, 2018, p. 1). When exchanging currency, it is evident that the most crucial issue is to assure traders that they are exchanging items of equal value or as representations of equivalent value. Trust and assurance that a person is not getting cheated or that there is no counterfeiting of the currency are all key factors to consider, whether the discussion involves ancient times or the 21<sup>st</sup> century. This explanation highlights a few significant points to consider when discussing the relevance of currency, particularly in terms of the socio-cultural aspects of the concept of money as a fair exchange of value.

The paper currency dates back further than the development of minted coins, at least in Asia. “the first paper currency was utilized in China during the Tang dynasty over 1,000 years ago” (Schulz, Riley, & Stoneman, 2018, p. 1). It took many centuries longer for this form of payment to gain acceptance in Europe. The first European banknotes became available in Sweden in 1661, and by the 1800s, European traders used a wooden device known as a tally stick. According to this early method of a credit system of economic collaboration, the number of notches that accrued on the stick measured the amount of money lent to a particular individual or business enterprise (Schulz, Riley, & Stoneman, 2018). These interesting historical factors highlight the significance of a monetary system as it pertains to socio-cultural developments.

### **Socio-cultural factors**

From a socio-cultural perspective, money’s democratization has a crucial position in understanding current trends on currency and its possible replacements. According to some economics scholars, democratizing money provides equal opportunity for property ownership and full involvement in society’s democratic governance (Kregel, 2019). Most people in the 21<sup>st</sup> century are acutely aware that wealth disparities are becoming increasingly prevalent in contemporary times. As one economic scholar explained these processes, “if the divergence between capital and labor—between rich and poor—is explained by the monopoly access of capitalists to finance, then reducing this divergence is crucially dependent on the democratization of money” (Kregel, 2019, p. 1). The scholar explains the underlying ideological concepts as they were interpreted by the English economist and philosopher Adam Smith during the late 18<sup>th</sup> century, which coincides with the foundational government documents established in the United States of America. Adam Smith was an influential 18<sup>th</sup>-century thinker and philosopher with a high level of influence on capitalistic enterprises directional trends throughout Western history.

In his time, “property was primarily ownership of land, which was acquired through inheritance, royal gift, or forced transfer” (Kregel, 2019, p. 2). However, this long-standing tradition highlights class distinctions, which does not align with the principles of a democratic form of government or society. Instead, the transfer of property from one generation to the next allows families to control the wealth in ways that diverge significantly from democratic ideals or the practices of a fair economic system.

While these class distinctions are wholly familiar to 21<sup>st</sup>-century populations, from a practical perspective, they are not sustainable in contemporary times. “Money is arguably the master institution of modernity. It dominates virtually every aspect of contemporary life, from national politics and international relations to the decision of whether to buy chicken at ShopRite or Whole Foods” (Edwards, 2017, p. 1). This key factor has a central position in the contemporary developments such as cryptocurrency—meaning private investment rather than

moving towards increased rules and regulations imposed upon the average person, where the concept of personal freedom and independence has an essential position in their philosophies about money, especially when it comes to how they will be spending their money

As the philosopher and economic scholar Karl Marx noted in his 19<sup>th</sup>-century discussion on the topic of wealth disparities in industrial societies; the capital was the property that purportedly needed to be defended by a central government; thus, producing “divergence between the capitalist and laboring classes...access to money and finance was the key to capital appropriation via the exploitation of labor” (Kregel, 2019, p. 2). The ideology of communism developed in some societies due to Marxist conceptual principles has a significant role in many economic discussions even today. However, capitalism has become a more predominant form of practice in recent economic times.

In recent times, some sociological research studies have drawn criticism from academic researchers in other disciplines for various reasons and purposes. According to one sociologist, the knowledge produced in sociology may be “easily dismissed as ideologically driven propaganda emanating from ‘the far left,’ or irrelevant ‘relativist’ musings projected from the ivory tower” (Adorjan, 2019, p. 161). This type of criticism has many political undertones, as the passage clearly shows. The sociological studies conducted on wealth distribution, ethnic, and cultural factors about how money is manipulated in society, and many other complex issues all have an essential role in the ongoing discussion. Economics is a social science where the decision-makers’ behavior is not governed purely by economic considerations but also by social and psychological factors (Huber, 2019by ). Thus, many issues need discussion more comprehensively to gain a higher level of understanding of the current trends as they are developing.

### **Economic factors**

In economic theories, developing and analyzing different theoretical models to understand trends in the monetary systems of various forms of governance is vital for achieving a higher level of comprehension about how these systems work on a practical level of formulating effective marketing strategies and the like. For example, one economic researcher explained the theoretical basis for his study using two different models. In the first economic model, he focused on a classical monetary framework of simplicity and traditional understanding--“characterized by perfect competition and fully flexible prices and wages” (Gali, 2014, p. 3). Thus, according to this explanation of how the marketing plan on a practical level fits within the theory, there would be a fair balance for exchanging goods and services. For example, there might be just as many shopping options as people living in the surrounding communities to purchase items. Yet, healthy competition among the various shops and restaurants would mean that one business would need to lower their prices to compete with a similar business enterprise, only a block or two away. Wages for employment at the local shops and restaurants would also be flexible enough to accommodate the community. All of these ups and downs go according to schedule within this framework of the traditional understanding.

Yet this business model was not the only option for purposes of the research study. In the second model, the researcher juxtaposed “a standard New Keynesian framework with monopolistic competition in goods and labor markets and staggered nominal wage and price setting” (Gali, 2014, p. 3). In this new type of situation, one business enterprise—generally a large corporation that dominates the region and therefore controls all of the wages since there are

very few jobs around in the surrounding communities and locales—predominates over all the rest; thus, crushing out competition solely by the size and scope of the business concerns. These monopolizing tendencies have become increasingly evident within many modern urban communities as they have been developing over the past several decades.

According to a 2017 Technical Report of the European Central Bank on the topic of dominant currencies in the Central Bank Reserve Holdings, the U.S. dollar remains at the top: “accounting for 64% of worldwide official foreign exchange reserves. The euro is in second place at 20%, and the yen is in third at 4%” (Gopinath & Stein, 2018, p. 2). Are these estimations accurate, and do they reflect predictable trends for the future, or are they less revealing than they appear to be? These questions are foremost on the minds and academic research hypotheses to study as the 21<sup>st</sup> century evolves. With the rapid pace of development in advanced technology, it is almost certain that the issues involved in digital currency will continue to increase throughout the next few decades.

## **Finance and technology**

Macroeconomics addresses the challenges and the opportunities available as a result of the combination of finance and technology. The global value chain has a vital role in understanding the patterns of development intricately related to the study of macroeconomics. However, as one economic researcher points out, it is impossible to accurately assess various issues involved with the global value chain due to the hidden areas of these economic processes known as the shadow economy (Brunnhuber, 2017). There are numerous effects on the global value chain that are not regulated or assessed through traditional means of economic studies; they are not a part of the mainstream economies that interact on a worldwide trade and market value assessments.

Instead, the shadow economy comprises an unregulated dark pool, high-frequency trading, and shadow banking—including the following: “money laundering, trafficking, drugs, illegal financial transactions as well as economic activities in the informal sector” (Brunnhuber, 2017, p. 4). Although it may seem surprising to the average person with very little knowledge of economics as a field of research study, these areas included in the shadow economy discussion are quite significant. According to one estimation, they reflect at least one-third of the world’s gross domestic product (GDP) (Brunnhuber, 2017). Since these financial activities remain obscured from legal accounting measures common to regulatory practices and economic researchers alike, it is challenging to consider whether these estimates are accurate. Yet they are still crucial for purposes of stability in the global value chain, with a significant concern that the shadow economy is “pulling the world economy in the wrong direction” (Brunnhuber, 2017, p. 4). Thus, economic researchers have an essential role in learning more about these hidden factors for understanding areas of the economy that are deregulated and hidden from public view.

## **Cryptocurrency**

Throughout this paper, one of the main subjects for discussion has focused on digital currencies, especially about the development of cryptocurrency—Bitcoin and its counterparts. In economics research, researchers recognized that cryptocurrency was one of the most innovative technological advances that changed many different financial landscape features. “The rise of cryptocurrency in the past decade is more than simply a technological feat; it is a real-world



incarnation of a monetary system with numerous features that have existed to date only as thought experiments” (Harwick, 2016, p. 569). For some researchers, the options available in the world of cryptocurrency are equal to an announcement of an entirely new system of investment possibilities, not only on an individual basis but also as a replacement for traditional banking methods as they have developed throughout history.

Perhaps the boldest claim on the topic of cryptocurrency is that this form of economic transaction “can or will supplant the current international regime of central-bank-issued monies” (Harwick, 2016, p. 569). This event may transpire a new future development, but the main point to consider is that it has been discussed as an area of possibility. The relationship between finance and technology continues to progress in reasonably unpredictable ways, which adds to the level of chance significantly. It is undoubtedly an intriguing topic to consider various perspectives. Other economists and political science researchers are approaching the subject more cautiously, and it is most likely too soon to predict the direction it will go. As the 21<sup>st</sup> century progresses, this critical topic will continue to have a crucial role.

Macroeconomic research has an essential role in understanding the digital currency’s direction pertaining to future possibilities. According to one economic research study conducted on macroeconomic patterns, there have been two parallel trends that exist side by side within the current analysis framework. On the one hand, the researchers noted: “the puzzling resilience of the public paper currency, notwithstanding the wide diffusion of the cashless payment technologies in advanced economies” (Borgonovo, Caselli, Cillo, & Masciandaro, 2017, p. 2). The researchers do not explain precisely why it seems to be so puzzling that paper currency is still a predominant form of exchange. Instead, they remark about its prevalence, which shows that traditional value exchange methods could be a key factor. A parallel trend on the other side of the debate refers to digital currency as it is developing, described as “a particular innovation...the issuing of the so-called crypto currencies” (Borgonovo, Caselli, Cillo, & Masciandaro, 2017, p. 2). As established through blockchain technology, cryptographic methods are used to hide the exchanger’s identity, which is one of its primary features that seems to draw a high level of attention among economic researchers and investors from many different regions of the world. Another critical element of cryptocurrency concerns the transactions, which “operate peer to peer via an electronic network without a trusted authority that manages it” (Borgonovo, Caselli, Cillo, & Masciandaro, 2017, p. 2). Cryptographic techniques used for transactions in these types of money exchanges are becoming increasingly popular among many different investors world.

Blockchain technology in banking is a revolutionary advance in the financial sector. However, it is too early in its development to predict precisely how this advancement will affect the sociopolitical aspects of currency. “Today the only public money available to all citizens is the paper currency, that still represents a relevant share of the money supply in the advanced economies” (Borgonovo, Caselli, Cillo, & Masciandaro, 2017, p. 2). According to economists, the traditional currencies’ pattern breaks down into quantitative measurements analyzed globally. This approach provides economic researchers with the knowledge available to show where the highest levels of wealth exist and why it matters for the future of digital currencies. Yet, it still does not provide accurate forecasts for the future.

In 2015, the per-capita holdings of paper currency related to GDP existed in the following manner: Japan, 20 percent; Switzerland and the Euro region, 11 percent; the US, 8 percent (Borgonovo, Caselli, Cillo, & Masciandaro, 2017). There are many optional ways to interpret these numerical percentages to understand specific global economic analysis trends.

Yet, researchers have no concurrence on how they are specifically related to the future of digital currencies or any other directional trends. Instead, there are many questions.

For example, in one analysis, the researchers reflect on some of the issues from a perplexity position, as the following statement clearly shows. “Even more puzzling, the paper currency circulation gone up in the recent years and can be observed in several and heterogeneous economies, as well as inside and outside the issuing country if we are looking at a global reserve currency” (Borgonovo, Caselli, Cillo, & Masciandaro, 2017, p. 2). These questions continue to be discussed among economic researchers as new forms of currency proliferate through the combination of finance and technology.

### **Sociopolitical factors**

In *Money, state, hegemony: A political ontology of money*, Joscha Wullweber discusses many of the political concerns of currency pertaining to socio-cultural and economic issues of the 21<sup>st</sup> century. According to his analysis, research scholars in economics need to address the intricate connections between “money-form, its relation to value, to society, and to the state” (Wullweber, 2019, p. 1). By following this reasoning line, some critical factors become more illuminated in economic theory and improved understanding in the public view.

Whether the average citizen living in a democratic society grasps these key concepts on a subconscious or conscious level of awareness, these pertinent issues affect particular outcomes daily. There are significant wealth disparities in most cultures around the globe. Economic researchers have struggled with these societal issues from various perspectives for many decades, which provide the basis for academic research on a scientific level of understanding. Yet, even with all of the theoretical knowledge on the topic of how money works in a practical sense, there is still a significant level of controversy and debate among economists. It is an area of research study that often develops in unpredictable ways, as the advent of the euro form of currency highlights. “One size does not fit all—just look at the euro, a currency that was meant to unite several nations, but is increasingly causing divisions” (Birch, 2018, para. 4). This example provides a lens of analysis that is more closely associated with currency’s socio-cultural factors as a representative form of value than as something to be attained for its intrinsic worth.

The author of the previous statement, David Birch, has become an increasingly popular commentator on how money works in contemporary societies. He is a book author on digital currency and the historical relationship between money and society, *Before Babylon, Beyond Bitcoin*, which has become an important reference point for 21<sup>st</sup>-century audiences as new technologies progress (Birch, 2018). He has written numerous articles for the average person living when the currency has become inflated to the point that is quite distressing, especially for an older population—many who can recall prices much lower than today. Housing, food prices, and many other products and services have soared in recent years, which do not reflect growth in economic productivity or wages increasing at a similar rate.

These factors have resulted in many wealth disparities that divide the general population culturally, socially, and politically in many global regions. As one social science researcher explains the underlying processes involved, “money ultimately represents a specific political relationship resulting from hegemonic struggles” (Wullweber, 2019, p. 1). This explanation may not be entirely accepted or understood by most people faced with these types of struggles daily. However, it affects their lives nevertheless.

## Conclusion

This research's primary purpose was to investigate the relevancy of currency in the changing era of technology. In the 21<sup>st</sup> century, there are many developments and trends on currency and its use in the future. Thus, the main research question explored these trends from various perspectives to make an educated determination on possible directions of currency as the 21<sup>st</sup> century progresses. How relevant will the currency be in the future? As shown in this study, it is a complex topic that intersects with many socio-cultural, political, and historical developments. The digital currency has become a key area of research study in economics, closely associated with the rapid developments in technology that have progressed within a relatively short period. However, it is not the only issue to consider within the framework of economic processes. There are also many socio-cultural and political factors involved with the currency of all forms, whether financial transactions are carried out in personal exchanges or on the new Internet technologies where mobile applications allow ordering anything from lunch at McDonald's to a real estate deal. Increasingly, digital currency is replacing the form of traditional currencies such as minted coins and paper money. Of particular interest for purposes of this research, the socio-cultural and political factors involved with traditional currency have been reviewed as a lens of analysis for understanding possible directions of digital currencies in the future. While it would be presumptuous to claim for sure, it seems quite likely that traditional forms of currency will one day assume a historical position.

## Future

In 2019 The Bank for International Settlements Innovation was established to cultivate international collaboration on innovative financial technology within the central banking community's established structure. Hence, the debate moves toward unearthing insights into critical trends that are of relevance to central banks. The public sector is explored as it enhances the function of the global financial system. There are currently eight public sector banks involved whose involvement leads to a more stable international system. Hence, Bank of England, Bank of Canada, U.S. Federal Reserve System, Swiss National Bank, Nordic Central Banks, Euro-System- Frankfurt and Paris, Monetary Authority, Singapore, Hong Kong Monetary Authority Asia and Pacific. (Fisher, 2020). Furthermore, it is not only the eight banks mentioned above that are interested in digital currencies. It is safe to say that all central banks are evaluating the long-term impact of digital currencies and, more specifically, Central Banking Digital Currency (CBDC).

The system does face many challenges to digital transformation. Therefore, creating a new market represents opportunities for new players to enter and create regulatory silos. Competition arises, and so does experimentation, failing, and disruption. The system becomes prone to risk and uncertainty and leads to the market of trusted partnerships and legal arbitrage opportunities. The addition of platforms provides value-added by removing friction in collaboration and facilitating business and economies of scale. Virtual hackathons on the global scale further enhance this infrastructure when conducted. Activities and engagements are conducted digitally on the cloud using a cloud-based real-time market monitoring platform. The regulatory mission focuses on stability over market volatility, globalization, crypto assets, national currencies, automation, and cross-market influences. It seeks to promote consumer protection, reduce fraud, discrimination, access to services, finance, harm privacy, and data

ownership. Furthermore, it leads to the free flow of competition. It levels the playing field, leading to innovation by reducing entry barriers, creating strategic alliances, and conglomerate effects. The regulatory challenge relies on speed and agility, specialized technological knowledge, algorithmic black-boxes, regulatory and jurisdictional arbitrage, and adjusting the regulatory parameters. (Fischer, 2020).

The scholars studying the subject matter have argued that the very historical development of payment systems is the central issue and cite the example of the bill of exchange developed in the 13<sup>th</sup> century as the first payment systems methods. A further question is how the major crises and, in the past, have led to structural changes in the payment systems and how state intervention is a key factor. (Quinn & Roberds 2020). It is the general economic policy of the state that guides the matter and provides an anchor. Furthermore, we arrive at many other complications such as; long-term political risk of credibility and legitimacy, the implications for banks and the financial system, financial inclusion, implications for regulation, implications for the international monetary system, and implications for international relations. The cycle of regulation continues and exists to solve problems until a new equilibrium is found and disturbed; the cycle resumes.

Fintech innovations, blockchain, distributed-ledgers, cryptocurrencies, and the frontiers of computer science and technology face a disruptive future. This outcome is because the institutions built on foundations of trust far outweigh the industry of fintech innovation. Walrasian exchange, barter economy, instant and final settlement, financial position, and deferred settlements are all possible due to trust. Centralization is then a solution to the lack of trust, creating property rights, the rule of law, reputation mechanism, and major parties. Hence, central banks are central counterparties in interbank payments. Blockchain, on the other hand, enables settlement in a zero-trust environment. Thus, it can be termed as a settlement machine but not as a trust machine. It facilitates exchange by working in the absence of trust. (Grym 2020)

As trust seems to be the crux of the matter holding everything together, fintech's inability to create trust is called to question as it cannot succeed without it. This issue is exemplified by security issues that face financial technology. Hence, blockchain technology finds itself able to save time and money for business and its customers. What follows is that there will be increased trust and transparency in many currently opaque industries. Therefore, the trust will become an essential element of blockchain technology. The workings of the distributed ledger system do not need the counterparties to have an established relationship. If each participant in the transactions trusts the blockchain itself, they directly trust each other, opening up new avenues of customers for business operating on blockchains. (Janeway, 2020).

The focus on centralization as the proposed problem leads us to examine what is Central Banking Digital Currencies or CBDC. CBDC is described as the money flower. It is widely accessible, electronic, central-bank issued, and in tokens. Central banks employ two types of CBDC wholesale and general-purpose (retail). The advantage of issuing a CBDC includes payment safety, payment efficiency, financial stability, monetary policy implementation, and financial inclusion. The Bis Innovation Hub is planned to have strategic partnerships in eight locations by the end of 2021-2022. The priorities include effective supervision, modern payments and transaction banking systems, CBDC and cross-border payments, data platforms, open finance, and cybersecurity. (Cœuré, 2020).

Digital technologies and digital financial technologies have forced all banks to reconsider their comparative advances in the market. The bank's traditional comparative advantage is customer interaction, monitoring credit, scoring, brand value, product distribution, balance sheet

management regulatory compliance, interbank network. Fintech bringing in new competition further erodes this advantage, and this varies country by country. It causes a split between the bank's credit services (investment funds) and liquidity services (stable coins). Furthermore, there are welfare implications such as the moral hazard of fractional banking, disciplining effect of demandable deposits liquidity creation, and lending complementary uninformed investors preferring opacity, issues in the social value of liquidity transformation, and disintermediation. (Adrian, 2020). The impact of digitization will be felt more importantly on eight systematic banks that are of global importance. These banks include Bank of America, Citigroup, Goldman Sachs, JP Morgan, Bank of New York Mellon, and State Street. Furthermore, the consequent impact will be felt on the underlying regulatory architecture that includes 17 acts and the bank's solvency mechanisms. (Rashid, 2020).

A significant advantage of digital currency is that it leads to financial inclusion. Especially during crises and in developed countries, private digital currency such as Libra and existing telecom-enabled platforms like MPesa and Equitel have delivered a bulk of benefits. The problems highlighted by Covid 19 are to be addressed by governments as faults, and social problems were exposed. Some examples are Ant and how it dominates mobile payments in China. As an alternative to competing with the financial sector, it has become a digital supermarket of other offerings letting users buy on credit, invest in mutual funds, and find insurance through established players. (Gertler, 2020).

The rapid development and sheer scale of this endeavor brings to light many regulatory issues that are vast. Fintech's share in America is not as large as in China, and developing countries are adjusting in global finance. Fintech-centric legislation is mostly untested, and the research, analytical frameworks are lagging. There are financial stability issues, the impact of cloud services to finance, privacy, integrity, anti-money laundering, and BigFinTech (is it too big?). Fintech hop and cross the border and lead to turf conflicts with data authorities. The reporting mandate decided by G20 in 2009 is a vision unfulfilled 11 years from then. There exists regulatory fragmentation, lagging data culture in public authorities. There is comprehensive oversight failure, and there needs to be corporate reporting, auditing, public enforcement, law enforcement of money laundering, AML supervision, payment systems supervision, banking supervision, and the existing threat of fintech nationalism. There needs to be a practical approach, as there exists no model for financial stability, and there is a debate about financial product licensing. Possibilities include raising the game for holistic system monitoring to engage in (nonfinancial) Big Tech policy reform /debates such as BigTech / Finance separation mandate, supervisory architecture, individual jurisdictions, and supernational experimentation. (Veron, 2020).

The advent of digital currency exposes severe problems in three major areas of our economic systems; central banking, international monetary system, and international relations. There exists a link between payment systems, digital innovation, and access to financial services. New technologies bring with it both equalizing opportunities as well as opportunities for inequality. "Payment systems sit at the heart of modern economies. They consist of instruments, procedures, and rules for the transfer of funds between or among participants as well as a set of operational entities that facilitate these transfers." (Barr, DeHart, Kang, 2019).

International monetary systems become crucial as much of the interaction occurs and focuses on cross-border payments. As the Federal Reserve plays a vital role in treasury markets, any disruptions become global problems. Hence, the accommodating Fed that we see today may not be the same later; hence, an alternative digital sound feasible to many. A Synthetic

Hegemonic Currency or SHC as a network or basket of CBDC's reduces the other countries' sensitivity to U.S. financial conditions and provides a buffer to the global financial cycle. The details of how it should work have not been etched out yet and need more direction.

(Eichengreen 2020)

The analogy used is the IMF's Special Drawing Rights used as the basket of five leading currencies. SDR's are digital already hence making the Fed Digital already. SDR's can be split for wholesale and retail purposes but remain hampered by a lack of demand and already existing payment structures that are averse to digital technology due to the existence of year-old cross border transactions and open financial markets. The disproportionate amount of dollars involved in the transaction leads to the rise of talk about the U.S.'s dominance in international transactions. Even including a troika of U.S. CBDC, EU CBDC, and Chinese CBDC may not change this. An eco-system of digital derivatives makes a difference and imposes the question if the regulator permits their free development and calls to question hedge's reliability. Even with an RMB's permissibility to counter, the alternative SWIFT payment method will not result in a change. The market share that other currencies hold in the international market may grow over time, but digitization's lead remains to be seen. (Eichengreen 2020)

The primary way of thinking about the issue is that our payment systems have come under the impact of technological disruptions. Trust remains the critical factor in financial transactions throughout the world, and lack of it becomes a problem. There are global cooperative measures in place that have taken the step in cooperation, which is reflected as recently as 2019. The move towards central banking indicates a need for more trust among digital monies, which is reflected in the scholars' studies as the preference for credit is greater than that of digital currencies. Furthermore, the market of digital currency is still a developing one compared to the systems already in place. The digital advantage in cross-border facilitation and financial inclusion is a well-noted advantage and the ability to work globally. The move to central banking represents a need for regulation. The institutions that have recently come into place to enhance the innovation can inform the future of ongoing developments and engage in the subject matter to provide insights and direction from a long-term perspective.

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