

Digital currencies and the digital dinar project in Algeria: issues, opportunities and challenges

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Abstract

This article analyzes the theoretical foundations and macroeconomic implications of digital currencies, focusing on the digital dinar project in Algeria. The latter is presented as a strategic lever for modernizing the financial system, strengthening inclusion, and consolidating national monetary sovereignty. The study highlights major opportunities, such as payment efficiency, combating the informal economy, and improving the transmission of monetary policy. However, implementation faces complex technological, legal, and societal challenges. In conclusion, the author asserts that the success of this transition hinges on a gradual, coordinated approach, rigorously adapted to the specific characteristics of the Algerian economy, to ensure harmonious and secure integration.

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1. Introduction

The progressive digitization of the global economy has profoundly transformed modes of production, exchange, and payment. The rapid development of information and communication technologies, coupled with the rise of digital platforms, has fostered the emergence of new forms of money, notably private cryptocurrencies and, more recently, central bank digital currencies (CBDCs).

Faced with the limitations of traditional payment systems and the risks associated with private digital currency, many central banks around the world have begun to consider, and even experiment with, CBDCs. These are seen as a way to preserve monetary stability, improve payment efficiency, and strengthen financial inclusion.

Central banks have begun researching central bank digital currencies (CBDCs) and, in some cases, their development. According to a survey conducted in late 2020, 86% of global central banks were conducting CBDC research, and by July 2021, 56 central banks had publicly reported their research or development efforts (Auer et al. 2020, Boar and Wehrli 2021).

A 2018 survey by the Bank for International Settlements (BIS), to which 63 central banks responded, found that 70% had initiated work on central bank digital currencies (CBDCs) or were preparing to do so; however, only three central banks considered it highly likely that they would launch a CBDC within the next six years (Barontini and Holden, 2019).

Interest in CBDCs has accelerated sharply in recent years. According to the IMF (2023), more than 110 countries are currently exploring the possibility of launching their own digital currency, representing over 95% of global GDP.

Thus, the issuance of these Central Bank Digital Currencies (CBDCs) has direct consequences for economic regulation. Indeed, their introduction will necessarily change how Central Banks conduct their monetary policy operations, in addition to providing valuable information for economic governance (Duval M; 2025).

In this international context, Algeria is also considering the possibility of introducing a digital dinar. The project is part of a broader strategy to modernize the banking and financial system and transition to a digital economy.

Indeed, we will attempt to answer the following question: **To what extent can the introduction of the digital dinar be a strategic lever for reducing the informal economy and modernizing the Algerian financial system, while preserving the stability of the traditional banking sector?**

To carry out our work, we formulate the following hypotheses:

H1: The adoption of the digital dinar will allow for a significant reduction in the circulation of cash by capturing liquidity outside the banking system, thus promoting greater transparency in financial transactions in Algeria.

H2: The success of the digital dinar depends on the establishment of a precise legal framework and a robust technological infrastructure (cybersecurity, offline payments) capable of addressing disparities in internet access across the country.

To address this issue, the study adopts an analytical and descriptive approach structured as follows:

We begin with a literature and conceptual review, which will be devoted to analyzing the theoretical foundations of central bank digital currencies (CBDCs) and their typology. We will then move on to a study of the Algerian legal framework, specifically Law 23-09 relating to currency and banking, which gives legal standing to the digital dinar.

We will then move on to a comparative analysis (Benchmarking) phase which consists of a review of successful or ongoing international experiences (e-CNY in China, eNaira in Nigeria) to identify key success factors and risks of banking disintermediation.

2. Digital currencies: conceptual framework and typology

Digital currencies refer to forms of money whose existence, circulation, and use rely primarily on electronic media and digital infrastructure. Unlike fiat currency, which is materialized as banknotes and coins, digital currency has no physical form and operates within secure information systems.

Historically, digital currency is not an entirely new phenomenon. From the widespread adoption of bank accounts and electronic payments, a significant portion of money became intangible. However, recent technological innovations, such as blockchain, advanced cryptography, and mobile payment platforms, have profoundly transformed the nature and uses of digital currency, expanding its scope beyond the traditional banking system.

2.1. Typology of digital currencies

Digital currencies can be classified according to several criteria, including the issuer, the degree of centralization, and the regulatory framework.

First, private digital currencies, including cryptocurrencies, are issued by non-state actors and generally operate in a decentralized manner. They rely on distributed consensus mechanisms and are not backed by a central monetary authority. They are considered "decentralized" currencies, in that they do not require a financial intermediary to conduct electronic transactions and do not have a central bank or other authority responsible for controlling monetary policy (HUSSAIN A; 2022).

Secondly, institutional or regulated digital currencies include stablecoins backed by real assets or legal tender, as well as central bank digital currencies (CBDCs). The latter are distinguished by the fact that they are issued and guaranteed by a sovereign monetary authority and are called central bank digital currencies (CBDCs).

CBDCs constitute a digital representation of the national currency and a direct claim on the central bank. They combine the advantages of fiat currency, particularly trust and stability, with those of electronic payments, such as speed and traceability.

A CBDC, which would be a new form of central bank money accessible to all, could be far more destabilizing to the current system, depending on how it is designed. The more such a CBDC competes with commercial bank deposits, the more it threatens their funding, with potentially negative effects on bank lending and economic activity (Agur et al. 2019). However, a retail CBDC could also be beneficial (Bordo and Levin 2017). Issuing a central bank digital currency that is free from counterparty risk and accessible to all could also improve the stability and resilience of the retail payment system. It could also provide a neutral payment infrastructure to encourage competition, efficiency, and innovation.

In general, CBDCs can be defined as a form of digital currency, denominated in national units of account (NUAs), which constitutes a direct liability of the central bank (Group Central Banks 2020). They can be intended for wholesale use (i.e., by financial institutions) or retail use (i.e., by households and businesses, the general public). CBDCs can be account-based, meaning they rely on some form of identification, or token-based, meaning they allow for anonymous payments. CBDCs can use either distributed ledger technology (DLT) or conventional technological infrastructure. In most cases, CBDCs are designed to preserve the two-tier structure of the monetary system, with a division of labor between the public and private sectors.

Central bank digital currencies (CBDCs) can be viewed as a digital extension of existing forms of central bank money, namely cash (banknotes and coins) and central bank settlement accounts. As a digital liability of the central bank, wholesale CBDCs could become a new

instrument for settlement between financial institutions. Retail (or general-purpose) CBDCs would constitute a liability of the central bank, a form of digital money accessible to everyone.

Central bank digital currencies (CBDCs) can be used for interbank settlements and transactions between financial institutions, or for households and businesses for everyday payments. The choice of CBDC model depends on the central bank's objectives and the characteristics of the national financial system.

3. Economic and Monetary Implications of Central Bank Digital Currencies (CBDCs)

The introduction of central bank digital currencies (CBDCs) represents a major monetary innovation with the potential to profoundly transform the functioning of contemporary economies. Beyond their technological dimension, CBDCs raise fundamental economic and monetary issues related to the conduct of monetary policy, financial stability, banking intermediation, financial inclusion, and the overall efficiency of payment systems.

3.1. Implications for Monetary Policy

The introduction of a central bank digital currency (CBDC) is likely to have significant effects on the conduct and effectiveness of monetary policy. By offering a payment instrument and store of value directly accessible to economic agents, a CBDC can strengthen the central bank's ability to influence the money supply and liquidity conditions.

In some theoretical models, a CBDC would allow for a more direct transmission of monetary policy decisions, particularly in the event of negative interest rates or unconventional monetary policies. However, this development raises questions about the balance between monetary innovation and preserving the role of banking intermediaries.

3.2. Effects on Financial Stability

From a financial stability perspective, CBDCs present both opportunities and risks. On the one hand, they can strengthen the resilience of payment systems and reduce reliance on private infrastructure. On the other hand, they can exacerbate the risks of bank disintermediation, particularly if economic agents favor holding central bank digital currency over bank deposits.

To mitigate these risks, several central banks are considering mechanisms to cap CBDC holdings or differentiated remuneration based on the amounts held.

3.3. Financial Inclusion and Economic Efficiency

One of the most frequently cited arguments in favor of CBDCs concerns their potential for financial inclusion. By facilitating access to secure and inexpensive digital payment services, they can help integrate unbanked populations into the formal financial system.

Furthermore, CBDCs can improve economic efficiency by reducing transaction costs, accelerating payments, and promoting transparency in economic transactions.

4. The digital dinar project in Algeria: motivations and objectives

The Algerian financial system is characterized by a predominance of public banks, relatively concentrated banking intermediation, and a still significant use of cash in daily transactions. Despite reforms undertaken in recent years, the banking penetration rate remains moderate, and the informal economy plays a significant role.

These characteristics represent both an obstacle to financial modernization and an opportunity for the introduction of new monetary and payment instruments, particularly the digital dinar.

Thus, Law 23-09 stipulates in Article 2 that physical currency consists of banknotes and coins. It can also take a digital form, known as central bank digital currency (Digital Algerian Dinar).

Furthermore, according to Article 4 of the same law, only banknotes, coins, and central bank digital currency issued by the Bank of Algeria are legal tender, to the exclusion of all others. They have unlimited discharge power. The digital dinar can be defined as an electronic version of the Algerian national currency, issued, guaranteed, and regulated by the Bank of Algeria. Like other central bank digital currencies (CBDCs), it aims to complement, not replace, traditional forms of physical and electronic money.

4.1. Economic justifications for the digital dinar

The introduction of a digital dinar is part of a broader strategy to modernize the financial system and diversify payment methods. It addresses several key economic objectives, including reducing the costs associated with managing cash, improving transaction traceability, and enhancing the effectiveness of public policies.

The digital dinar could also play a significant role in combating the informal economy by promoting the formalization of transactions and improving tax revenue collection.

The main objectives of the digital dinar can be summarized as follows:

- Modernize payment methods and encourage the digitization of transactions;

- Strengthen monetary sovereignty in the face of the proliferation of crypto-assets and private stablecoins;
- Increase financial transparency and the traceability of monetary flows;
- Promote financial inclusion, particularly for unbanked populations;
- Reduce transaction costs and the size of the informal economy.

Thus, the digital dinar represents a strategic evolution of the Algerian monetary system towards a more connected, efficient and secure economy.

However, for the reform to translate into tangible effects, several prerequisites must be satisfied (Qassouri & Abba, 2024), notably:

- Development of real-time payment platforms and robust electronic Know Your Customer (e-KYC) systems,
- Deployment of advanced financial crime detection and monitoring technologies, and
- Establishment of operational frameworks that ensure commercial banks are not excessively displaced from the intermediation process.

Comparative research further suggests that Algeria's motivations are broadly consistent with regional experiences across Africa and the Middle East, particularly in the pursuit of greater financial inclusion and reduction of excess liquidity circulating outside formal banking channels (Amalou & Doudene , 2024).

4.2. Challenges and constraints related to the implementation of the digital dinar

The implementation of the Digital Dinar in Algeria will not be a simple technical update. Given the specific economic context (strong predominance of cash and the informal sector), the project faces a real "wall of challenges".

4.2.1. Technological and Infrastructural Challenges

The implementation of a digital dinar requires the development of reliable, secure, and interoperable technological infrastructures. Cybersecurity, personal data protection, and payment system resilience are particularly critical issues in a context of increasing digitalization.

The choice of technological architecture, whether centralized or based on distributed ledgers, is a key element of the project. Furthermore, the possibility of offline payments is of particular importance in a country where internet access is not always uniform.

4.2.2. Legal and regulatory challenges

The introduction of a digital dinar requires an adaptation of the existing legal framework, particularly regarding the definition of legal tender, the obligations of financial intermediaries, and user protection.

Ensuring consistency between digital currency and legislation related to combating money laundering, terrorist financing, and the protection of personal data is a major challenge for the authorities.

4.2.3. Social Acceptance and Trust

The success of the digital dinar largely depends on its acceptance by economic actors. Public trust in the security, confidentiality, and reliability of the digital currency is a determining factor.

Awareness campaigns, financial education, and institutional communication will be necessary to support the rollout of the digital dinar and encourage its adoption.

5. International comparative analysis of central bank digital currencies

Over the past decade, several central banks have launched pilot projects or advanced experiments with central bank digital currencies (CBDCs). These experiences provide a relevant comparative framework for analyzing the prospects of the Algerian digital dinar.

China is one of the most advanced examples with its digital yuan (e-CNY). This project primarily aims to strengthen central bank control over digital payments, reduce reliance on private platforms, and improve financial inclusion. The Chinese approach is characterized by strong centralization and a gradual, large-scale rollout.

In advanced economies, such as the eurozone, the European Central Bank is exploring the digital euro project, primarily aimed at preserving monetary sovereignty in the face of private and foreign initiatives. The focus is on protecting privacy, coexistence with commercial banks, and financial stability.

In emerging countries, such as Nigeria with the eNaira, CBDCs are seen as a lever for financial inclusion and reducing the informal economy. However, these experiences show that public adoption remains a major challenge due to limited trust and low financial literacy.

5.1. Context and motivation

Today, the emergence of Central Bank Digital Currencies (CBDCs) is not simply a technological fad, but a strategic response to the profound transformations of the global financial system.

In the following table, we have attempted to summarize the motivations of each of the three countries studied for adopting a digital currency.

Table 1: Context and motivation for creating a digital currency

Country	Economic and financial context	Motivation for the MNBC
Algeria	Economy dominated by cash (~80% of transactions), low partial banking penetration, predominant public banking sector.	Modernize the payment system, reduce the informal economy, strengthen financial inclusion, prepare for the digitalization of financial services
Nigeria	High mobile penetration, large informal economy, volatile naira	Fighting cash, improving transaction traceability, supporting monetary policy, reducing fraud and money laundering
China	Strong digitization of payments, massive adoption of e-wallets (Alipay, WeChat Pay)	Control the digital payment system, facilitate international transactions, strengthen monetary sovereignty

Source: compiled by the authors based on economic literature

As we can see from the table above, in Algeria, the challenge is to break the cash culture, deeply ingrained in Algerian financial habits, and to integrate the population into the formal banking system. This is a digital transition strategy for a still very traditional system.

In Nigeria, on the other hand, the priority is on security and traceability. In a country marked by the informal sector and monetary volatility, the central bank digital currency (eNaira) serves as a regulatory tool to clean up the economy and stabilize the currency.

Finally, in China, unlike the other two, the country is already highly digitized. The challenge today is to regain control from private giants (Alipay/WeChat) and to position the digital Yuan as an international alternative to the dollar.

5.2. Method of issuance and framework

The method of issuance and the framework of a central bank digital currency (CBDC) constitute two essential dimensions to guarantee financial stability, public confidence and the effectiveness of this new form of money.

Table N°2: Method of issuance and the framework of a central bank digital currency (CBDC)

Country	Issuer	Distribution	Legal framework
Algeria	Bank of Algeria (planned)	Not yet launched	Law 23-09: defines the digital dinar without detailing its operation
Nigeria	Central Bank of Nigeria	CNCB distributed through partner commercial banks and fintechs.	The e-NAIRA is regulated by the Central Bank of Nigeria Act and CNCB-specific guidelines.
China	People's Bank of China	Distribution via commercial banks and mobile applications.	Comprehensive legal framework, tested through pilot projects, legal tender, and direct supervision by the Central Bank.

Source: compiled by the authors based on economic literature

We note in this table that the Algerian authorities have enshrined the digital dinar in Law 23-09, thus granting it legal standing while awaiting its actual launch.

In China, the law serves as a tool for comprehensive oversight. It allows the Central Bank to have direct visibility into financial flows, strengthening the fight against corruption and money laundering.

In Nigeria, the regulations are evolving (specific guidelines), adapting to the lessons learned from the e-naira since its launch.

5.3. Identified advantages

A digital currency offers several advantages to an economy, as shown in the table below.

Table N°3: Advantages of a central bank digital currency (CBDC)

Country	Main advantages
Algeria	Reduction of cash usage, modernization of the banking system, improved transparency of financial flows
Nigeria	Fast and secure transactions, reduced fraud, support for monetary policy, inclusion of unbanked populations
China	Massive adoption by the population, integration with existing payment platforms, effective control of the money supply, facilitation of international payments

Source: compiled by the authors based on economic literature

For Algeria, the CBDC (Central Bank Digital Currency) is seen as a solution to fundamental economic problems:

- **Cash Reduction:** This is the primary benefit. The goal is to capture the liquidity circulating outside of banks and inject it into the formal economy.
- **Transparency:** Unlike anonymous banknotes, the digital dinar allows for clear visibility of who is paying whom. This is a major advantage for the state, enabling it to broaden the tax base and reduce the informal economy.
- **Modernization:** This represents a technological leap to address the existing shortcomings in banking penetration.

Nigeria is seeking functional and social benefits. The system exists, but it is imperfect.

- **Financial inclusion:** The main advantage is allowing someone without a bank account to use their phone as a secure wallet.
- **Monetary policy support:** In times of crisis or inflation, the Central Bank can (theoretically) act more quickly on the money supply through the eNaira than through traditional banks.
- **Speed/Security:** The advantage here is the immediate efficiency of transactions, facilitating daily commerce.

China aims to consolidate its dominant position and strengthen its sovereignty. Already fully digitized, the country is leveraging its central bank digital currency (CBDC) to optimize this system for the benefit of the state.

- Control of the money supply: The state is regaining control of payment data, previously held by private giants (Alibaba, Tencent).
- Internationalization: This is its main geopolitical advantage. The electronic yuan (e-CNY) is designed to facilitate cross-border trade and, ultimately, bypass the SWIFT system, which is dominated by the dollar. In this study, it would have been interesting to compare Algeria with Tunisia

This comparison with the Maghreb countries is particularly relevant for evaluating the Algerian project. Tunisia has engaged in advanced discussions on digital currencies, although their projects have not yet reached an operational stage.

Tunisia stands out with its relatively dense banking system and wider adoption of electronic payment methods. In this context, a Tunisian CBDC would primarily aim to improve payment efficiency and support financial innovation.

Comparatively, Algeria presents significant potential for CBDCs, particularly due to the high proportion of cash and the informal economy. The digital dinar could therefore have a more significant impact on the formalization of the economy than in neighboring countries.

6. Conclusion:

Central bank digital currencies (CBDCs) represent a major structural transformation of contemporary monetary systems, observed to varying degrees depending on national economic and institutional contexts. As an instrument of monetary innovation, they offer significant opportunities for payment efficiency, financial inclusion, and the modernization of economic policies, as illustrated by experiences and projects conducted in several emerging and developed economies.

In the case of Algeria, the digital dinar project is part of a broader financial system reform process similar to that undertaken by other countries facing heavy reliance on cash and a large informal economy. The theoretical and comparative analysis presented in this article, through an examination of international experiences with central bank digital currencies (CBDCs), highlights that the digital dinar could be a strategic lever for reducing dependence on cash, improving transaction traceability, combating the informal economy, and strengthening national monetary sovereignty. This confirms our first hypothesis.

However, comparison with foreign cases also reveals that the success of such a project hinges on the monetary authorities' ability to overcome significant technological, legal, and institutional challenges. International experience underscores the importance of a phased

implementation, based on pilot phases, an appropriate regulatory framework, and close coordination between the central bank, the banking sector, and other stakeholders. This confirms our second hypothesis.

Ultimately, in light of the lessons learned from these comparative experiences, the digital dinar cannot be considered a mere technological innovation. It must be conceived as a fully-fledged economic and monetary policy instrument, whose effectiveness will depend on its coherent integration into the overall strategy for the development and modernization of the Algerian economy.

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