CBDC: The Digital Future of Money.

Will payments be forced into disruptive regulation globally?

WORLDLINE

Payments to grow your world

Central Bank Digital Currency (CBDC): What is it?

CBDCs are digital currencies, for which the holder has a direct claim on a Central Bank (CB), just as with physical cash. CBDCs are stablecoins, with the value pegged to the currency issued by the respective central bank.

Stablecoins are digital currencies issued by commercial parties providing the holder a claim against the commercial party. Regulations are in discussion to ensure backing of these commercial currencies for consumer protection as well as financial stability of particular currency zones such as the EU, USA, China, and Australia. Many other countries or currency zones are submitting their own regulations, lacking standardisation, which has led to various complexities including non-interoperability.

The value of a stablecoin is kept "stable" by pegging it to either fiat money, exchange-traded commodities (such as precious metals or industrial metals), or another cryptocurrency.

The CBDCs can be split in two flavours:

- If used in the end-user environment (C2C, C2B, B2B), it is generally referred to as retail-CBDCs. For example, the digital euro (d€) is the retail CBDC that will be issued by European Central Bank (ECB) with a 1-to-1 rate with the "ordinary" euro.
- For payment traffic between CBs and/or Financial Institutions, the wholesale CBDC is used. For cross-border payment traffic many experiments and pilots are in progress with wholesale-CBDCs to overcome the non-speed and high cost of correspondent banking.

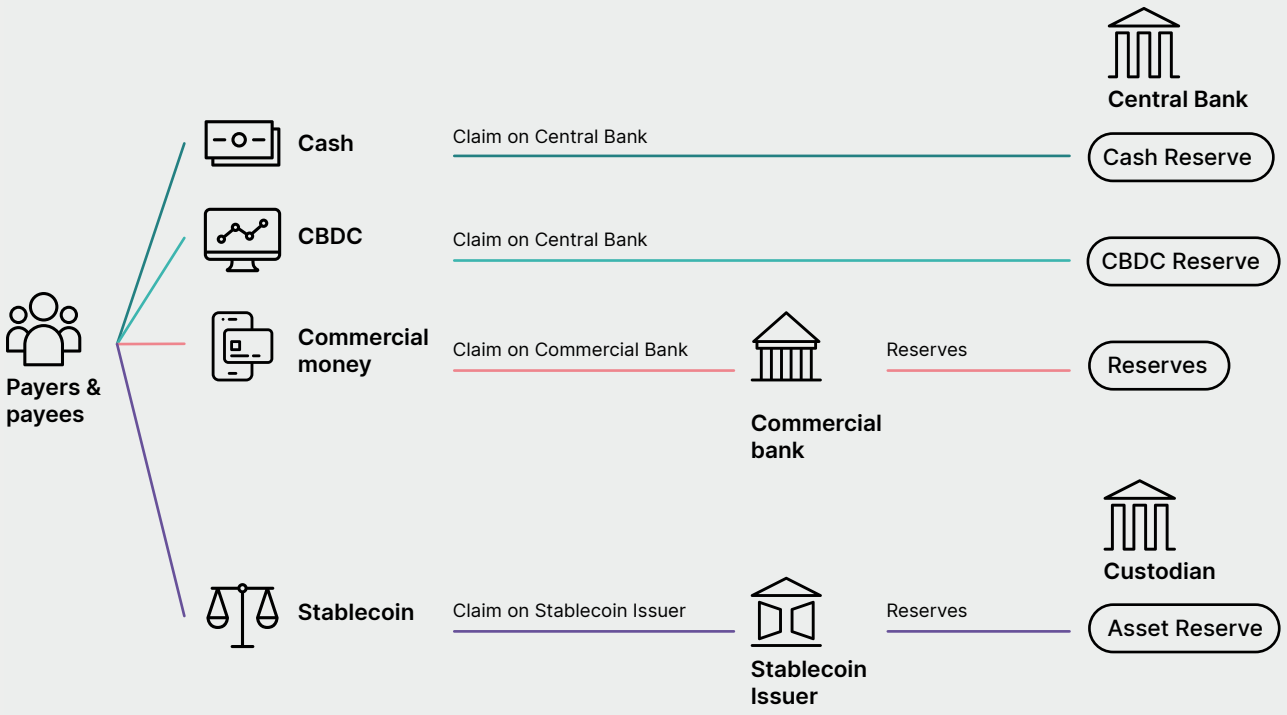
In the diagram below, the claims that the holder has on the respective currencies and the actors that carry out the issuance and distribution of the respective currencies are shown.

Everything is subject to digitisation nowadays, and cash is no exception.

In the white paper, Central Bank Digital Currencies (CBDCs) are considered from various angles as a new means of payment via digital currency, even globally.

CBDC presents an equal to cash payments: it can be anonymous and offline - with an even wider reach.

Claims on currencies held by payers and payees.



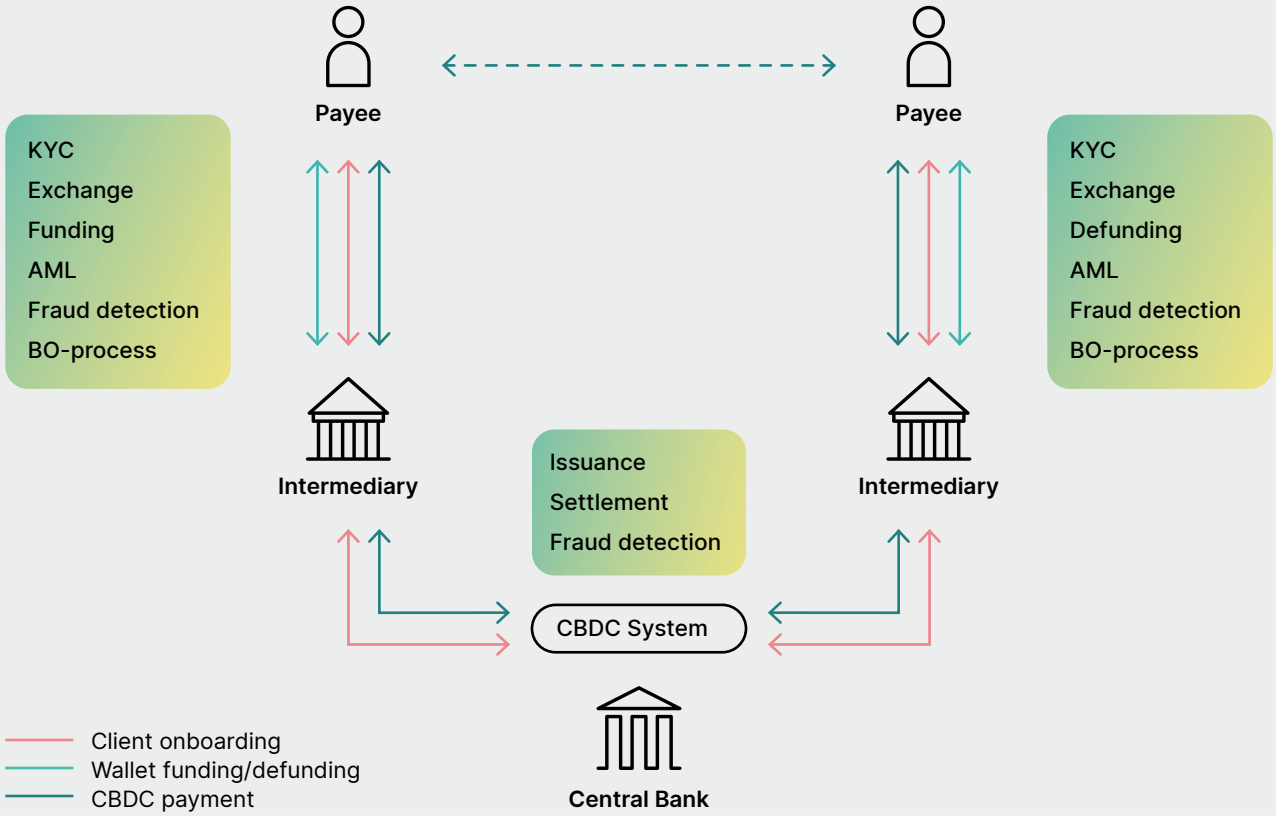
Connecting worlds: Legacy, liability and CBDCs.

No commercial money is involved during CBDC (central bank money) transactions outside of the funding and de-funding transactions. These transactions are the link to your current bank account and the only necessary link with the legacy payments processing world.

Most Central Banks do not have a direct relation with corporates or individuals and prefer to leave the distribution of their currency to the commercial market. Similar to physical cash, these CBs will only carry out the issuance of CBDCs. The distribution (funding and defunding transactions) is shifted to intermediaries. These intermediaries can be banks, but also PSPs, TPPs and ACHs depending on the regulations of the respective CBDC-area.

For regions where the CB decides to perform the issuance and handle the distribution themselves, without the need for intermediaries in between, these functionalities can be integrated.

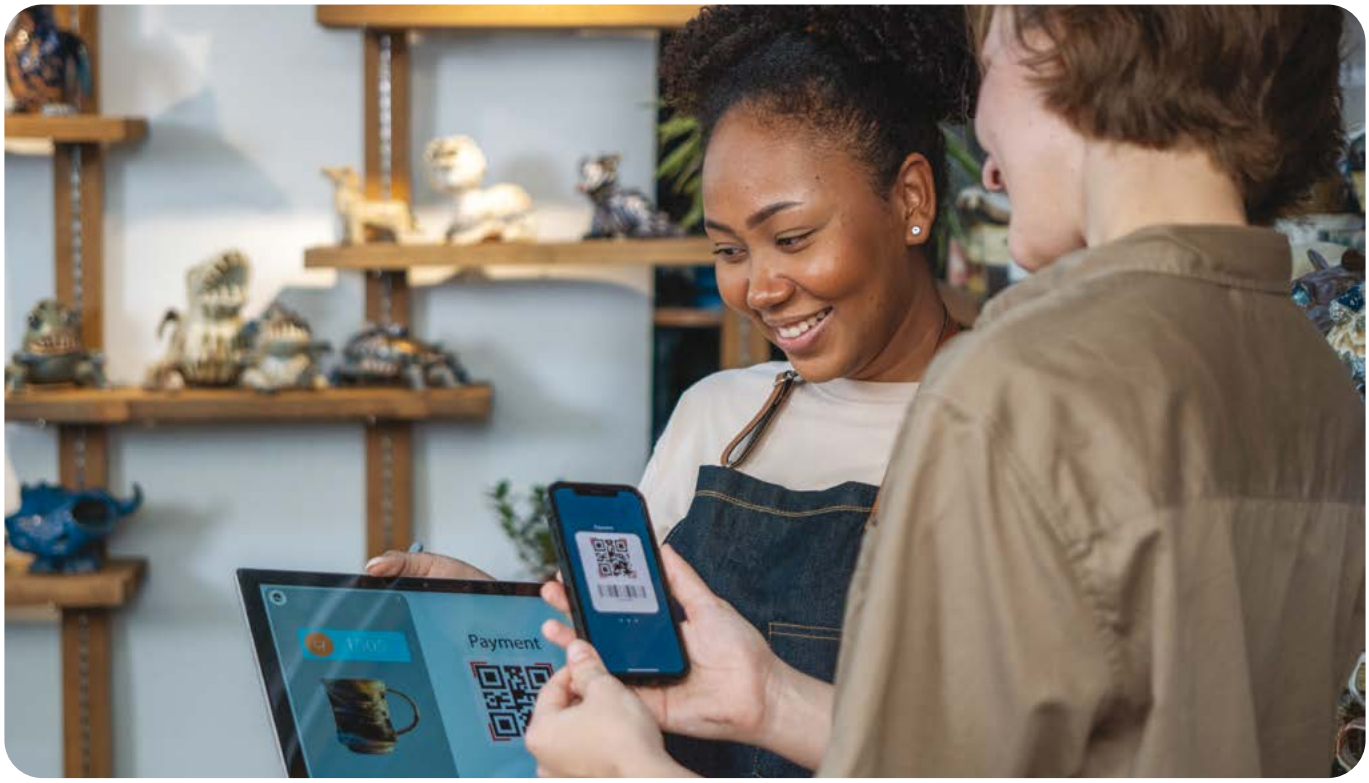
Processes and functionalities for CBDCs between actors are shown in the below diagram.



Due to the necessary link with regular bank accounts, each bank is perfectly suited as a potential Intermediary to support the distribution of CBDCs. To start distributing, an onboarding process (KYC), which banks have already, must be executed.

After distribution, pre- and post-settlement needs to be performed by the intermediary, as the transaction settlement in most cases takes place under supervision of a Central Bank. The reason for this split includes the struggle with privacy: CBDC payments should be like cash - anonymous. To assure anonymity, most CBs do not want to know identity, spendings and location.

On the other hand CBs want to make CBDC transaction more secure and reliable by adding anti-money laundering (AML), fraud checking and sanction screening mechanisms. To implement these mechanisms, transaction details are necessary. By delegating these functions to intermediaries, anonymity can be assured at CB level equal to physical cash. However, this delegation is a dilemma for CBs not being in 'full' control of their own currency.



Pros and cons behind CBDCs:

The question posed as to the intention behind CBDCs currently represents a grey area. Various reasons are given for investigating or issuing digital currencies.

CBDCs in their retail-form are noted in the first instance as intended to provide a digital, comprehensive, secure, low-cost and widespread payment instrument - complimentary to physical cash. In addition, inclusivity is a main reason for various currency zones supporting the 'unbanked.' Independence of foreign card schemes (e.g. valid for the euro zone) is another driver as well as providing a trustful alternative to crypto currencies.

Wholesale CBDCs are intended to support more efficient cross-border payment rails providing speed, low cost and transparency in cross-border/multi-currency transactions.

When introducing something new, there are opponents that state potential disadvantages. For instance, there is pushback in communities with regard to the tangible need of citizens for a digital currency complimentary to cash. This argument is complemented by the extra burden for financial institutions to support this new currency in addition to privacy issues and security risks. However, CBDCs are generally favoured as presenting great opportunities in connecting worlds.

Cost dilemma

The digital cash (CBDC) meets the legacy payments world preferably in a commercial bank environment where customer relations (merchants and individuals), onboarding, KYC and AML are already known processes. It is clear that this leads to higher payment cost for banks, and it is currently unclear how to recover these costs - especially if legislation can determine any fees per CBDC transaction or makes CBDC acceptance by merchants legally obliged.

Also, market parties, such as Payment Service Providers (PSPs), Automated Clearing Houses (ACHs), Third Party Providers (TPPs), may be discontent as a CBDC issuance can lead to lower card volumes, less use of card infrastructures and possible deteriorating business cases due to less revenues from card transaction fees. Disintermediation can be a huge threat for the existing market parties depending on regulations and legislation. In conclusion, the commercial market parties, including banks, do not see significant advantages, with major focus on new business cases that may not currently be profitable. This dilemma needs to be solved to make the introduction of a CBDC a success.

Connecting worlds: People and behaviour.

Digital cash sounds pretty normal these days and digitisation is one of the buzz words in the market - so why not digitise coins and bank notes?

Many benefits are mentioned: on- and off-line payments, less costs for distribution, faster, more hygienic, among others. The 'digital ATM' (for funding and defunding) is available anytime and anywhere – an overall more efficient payment means. It also fits into the fast pace of living these days!

But what about reliability and trust compared to physical cash? Anonymity? Perception of anonymity by the general public is a critical success factor. This makes the success of CBDCs, and the attractiveness of this new currency in the long run, heavily dependent on the introduction program, which must include clarity on anonymity.

Reliability will be proven to the people over time and trust as well. Cultures and personal behaviours differ per country, and in reality a slow uptake of this new payment means is expected. Also CBs will face differences per country in the area of market maturity, the accepted degree of privacy and the sensitivity for such incentives.

The initial expected lower volumes coupled with large upfront investments as part of this new payment chain makes it a challenge to achieve a positive business cases during the first years. This puts more pressure on the need to ensure clarity on the attractiveness for the commercial market parties.

Connecting worlds: Globalisation, interoperability and trust.

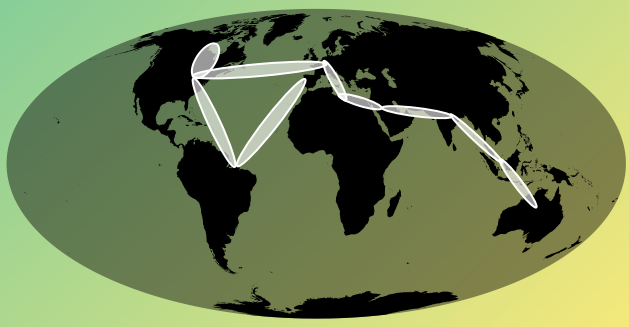
Cross-border payments are 'slow' and expensive, as currently solved by correspondent banking lacking transparency on costs and progress. This situation is based on 'local trust-areas' (also known as corridors relying on nostro/ vostro accounts). Banks who have relationships with each other have made mutual agreements in order to exchange payments, effectively expanding their reach.

Not every bank can have agreements with all banks in the world, leading to today's cross-border world of correspondent banking networks. Banks that are not a part of the network are totally dependent on the services of correspondent banks as far as global payments are concerned. Besides trust, the lack of interoperability and numerous FX-steps (trade negotiations) between those trust-areas are also a bottleneck.

Complex networks of correspondent banks and a global payments single trust-area are pictured.

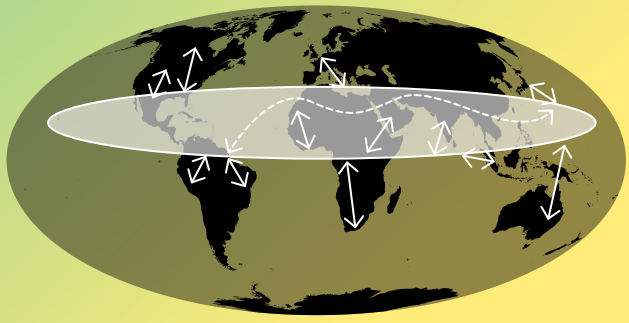
Corresponding Banking: Many trust-areas.

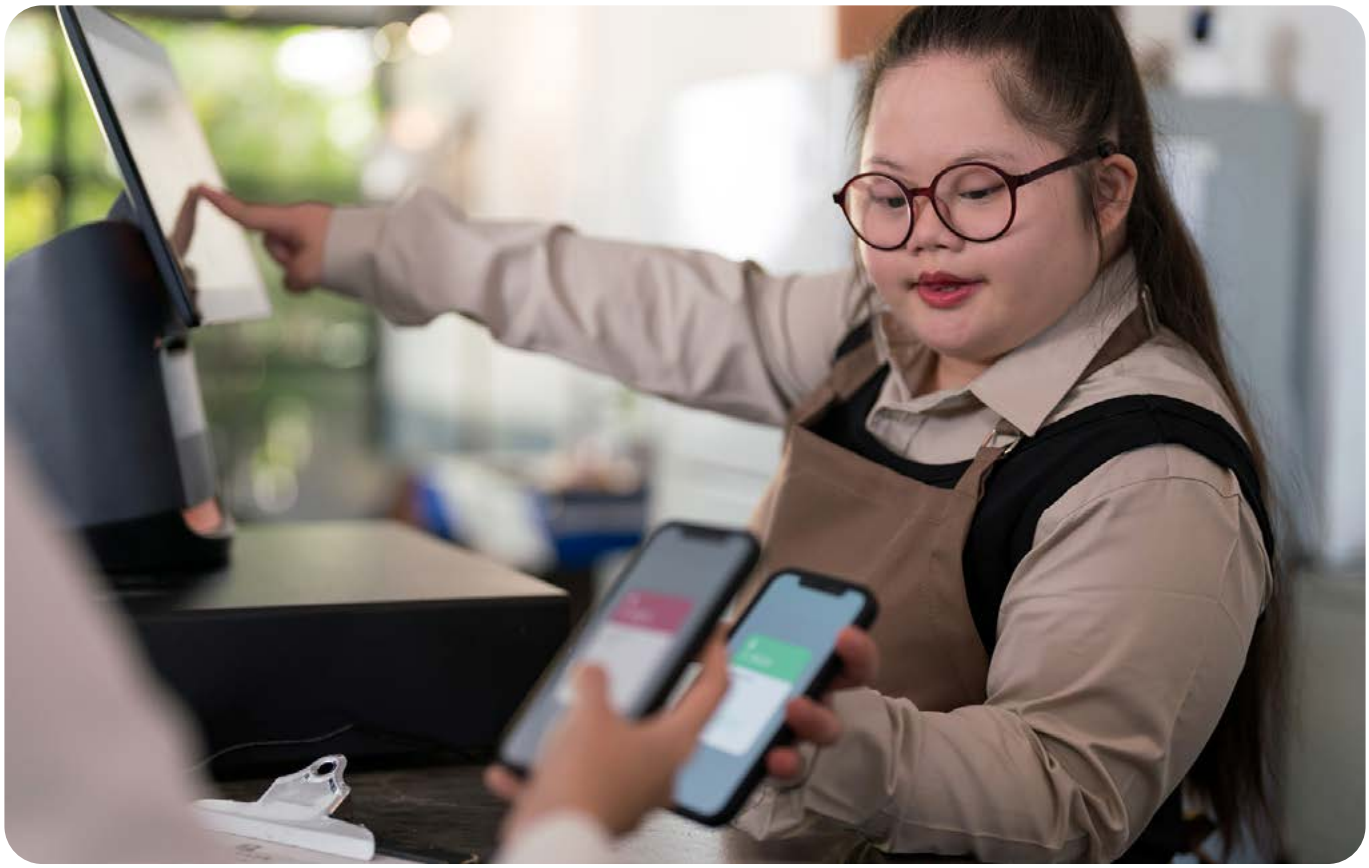
- Many interconnected trust-areas, local currencies as carriers
- Many intermediary transactions: can take days
- Many parties: high costs, complex fee structure



Global Payments: Single trust-area.

- Global CB trust-area: Wholesale CBDC as carrier
- <= 3 real-time payment transactions (10-15 seconds/global transaction)
- Only 3 parties: maximum 2x FX, easy fee structure





Today, every individual can reach every bank (account) in the world one way or the other, but this can never be efficient enough. Compared to over 170 years ago (starting in 1850 with sending cheques), much has changed that has led to today's pace of life (Anytime, Anywhere, 24×7×365). Technology advances and growing standardisation (ISO 20022) lead to the logical jump to implement global real-time payments based on CBDCs. A global, real-time transaction should be feasible to execute within maximum 10-15 seconds processed in 2-3 legs.

As a consequence, a global trust-area must be established. Here, the CBs headed by the Bank of International Settlements (BIS) are in the privileged position of being able to provide such a 'Global Trust Area.' This can lead to an even more disruptive regulation and will be a leapfrog from where we are today. Supporting an ISO 20022 'global highway,' where every FI can connect, with upfront transparency on fees and exchange rates, is beneficial for everyone. Also CBDCs in their Wholesale appearance will play a huge role as carrier in the CB trust-area. Building such a trust-area is not elementary.

The technology of today enables this kind of real-time processing, but next to technology, factors as geopolitics, standardisation and consequently, regulation will be a larger challenge. A single trust-area should never be dependent on a single system, single provider or single government: Mitigating risks on all levels is an absolute key in such a set-up.

Connecting worlds: Worldline connects.

Worldline joins you in your digitisation journey supporting evolving payment processes and trust-areas, evolving currencies (also cross-border, globalisation) including stablecoins. One of Worldline's goals is making sure that the connection between the legacy payments processing (ACH and Back-Office Processing) and the new opportunities provided by retail and wholesale CBDCs and stablecoins, is maintained.

Worldline fulfils value chains from payment initiation to the end-user, merchant services, banks' back-office services up to the clearing and settlement for fiat currencies, stablecoins and CBDCs supporting communities, commercial banks, stablecoin providers, third party providers, payment service providers, intermediaries and central banks. Worldline will support a global community of central banks based on wholesale CBDCs in the near future.

All of these services are accompanied by new technologies such as AI solutions and closely related Worldline solutions for the new world of open banking and related services such as e-Identity.

Conclusion: Disruptive regulation through the ultimate digitisation.

The issuance of a CBDC as part of a regulated scheme and forced legislation, making the acceptance mandatory for merchants, will lead to a disruption in the world of payments. New investments and possible yearly rulebook changes must be implemented (annual investments), while the card infrastructure needs to cope with decreasing volumes. CBDCs are real-time payments, and bringing these payments to the physical store, the current money-flows of merchants PSPs and acquirers will be disrupted. This is similar to the goal of the European Payment Initiative, EPI, which aims to implement SEPA instant payments for different use cases.

Digitising financial processes is critical, and digital cash can be seen as the ultimate form of digitisation. The success, fast acceptance of a CBDC, will be dependent on the attractiveness for all actors in the transaction flows. For the end-user, just like cash, the usage of a CBDC is for free but the other actors needs to look for compensation elsewhere in the payment chain. CBDCs offer intermediaries a great opportunity to deliver new (value-added) services to the market. A sufficient grade of anonymity (privacy issue) remains also as success factor as well as offline availability and a superb user experience.

If not attractive enough, CBDC implementations will face challenges and may therefore fail. However, if successful, there will be a disruptive payment behaviour on a global scale with a gradual shift to global commerce, impacting the belonging industries such as logistic chains following closely. Worldline supports these new currencies, technologies and processes as the leading payment processor in Europe, not leaving intermediaries out in the cold but providing them with the opportunity to reinvent themselves.

Interested in learning more? Click here and let's meet!

About the authors

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About Worldline

Worldline [Euronext: WLN] is a global leader in the payments industry and the technology partner of choice for merchants, banks and acquirers. Powered by c. 18,000 employees in more than 40 countries, Worldline provides its clients with sustainable, trusted and innovative solutions fostering their growth. Services offered by Worldline include in-store and online commercial acquiring, highly secure payment transaction processing and numerous digital services. In 2022 Worldline generated a revenue close to 4.4 billion euros.

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