

• Swiss Banking

The Deposit Token

New money for digital Switzerland



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**Swiss Bankers Association
White Paper**

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“As the digital transformation sweeps through the economy and society at large, it requires support from efficient, generally accepted and secure means of payment.”

1 Introduction

This white paper focuses on the question of **how banks can best support the Swiss economy when it comes to settling transactions in digital assets and executing payments in a digitalised economy.**

As the digital transformation sweeps through the economy and society at large, it requires support from efficient, generally accepted and secure means of payment. Against this background and considering developments such as the tokenisation of assets and the emergence of decentralised finance applications, the Swiss Bankers Association (SBA) is working on the concept of a digital currency in the form of tokenised deposits based on distributed ledger technology (DLT): the “**Deposit Token**” (DT). This kind of **stablecoin**, if carefully designed, would potentially allow for a wide range of new applications, reduce risks, increase efficiency, and open up whole new areas of business. Looking at the big picture, the main goals are to preserve and strengthen Switzerland’s standing as a leading hub for innovation, support the Swiss franc (CHF) as a means of payment, and bolster the technological sovereignty of the CHF economic area.

The SBA has worked with experts from its member institutions and academia to analyse the DT concept from economic, legal and technical standpoints. This white paper summarises an internal analysis of three potential DT variants and looks at the relevant overarching legal issues. It thus lays the foundation for in-depth analysis and discussion by key players, including clarification of legal and regulatory aspects and initial pilot projects.

The ideas set out below are based on the following **developments and working hypotheses**:

- **Many central banks are making rapid progress in their efforts to answer fundamental questions on digital means of payment.** Various projects have been conducted with regard to central bank digital currencies (CBDCs), in particular for the general public (“retail CBDCs”), some of which have already been implemented.¹ In Switzerland, the Federal Council and the Swiss National Bank (SNB) have stated that they see no need to introduce a retail CBDC at present, although they do acknowledge the potential for innovation in digital means of payment. The SBA shares this view and intends to contribute to Switzerland’s competitiveness and innovative power through its work on digital currencies.
- **A great deal of progress had been made internationally on instant payments (IP).** Switzerland’s biggest banks will be required to support IP from 2024. The IP system will make it possible to settle payments instantaneously from one account to another. While IP in itself does not directly expand the functionality of traditional means of payment, it does bring improvements for digital business models in terms of speed and availability, which are also beneficial for digital currencies.
- **Central and commercial banks from around the world are conducting a variety of pilot projects to create “wholesale CBDCs” (wCBDCs) for interbank settlement.** This is being done under the aegis of the BIS Innovation Hub. The SNB is also involved. These projects have the potential to yield key innovations in an important area of the economy, namely the efficient and secure settlement of transactions between banks. In the fractional reserve banking system, any implementation of wCBDC will affect how banks can provide their clients with digital means of payment.

¹ For more information, see <https://www.atlanticcouncil.org/cbdctracker/>.

- **The number of “wallets” used to store digital assets (including stablecoins) is growing fast globally.** Turbulent developments among some stablecoins and crypto companies suggest that there is a need for a stable, trusted and secure digital currency.
- **Stablecoins already exist for certain market participants in Switzerland.** Despite significant differences in their underlying concepts, privately issued digital currencies, in particular those linked to a traditional currency, are collectively often referred to as “stablecoins”. SIX Digital Exchange (SDX) and Sygnum, for instance, both offer stablecoins that are fully backed by reserves for transactions on their own platforms within a closed ecosystem. In addition, Swiss banks are involved in the Finality project for a wCBDC-based payment system serving tokenised peer-to-peer markets. Bitcoin Suisse, meanwhile, is issuing its XCHF, backed by a bank guarantee from Sygnum, which can be purchased, for example, via a decentralised trading platform. However, none of these initiatives are accessible to the general public due to their proprietary nature.
- **Efforts to regulate stablecoins are moving forward quickly.** These are being followed through particularly by international bodies such as the Financial Stability Board (FSB), the Organisation for Economic Co-operation and Development (OECD) and the Basel Committee on Banking Supervision (BCBS) as well as in relevant economic areas (especially the US and the EU). In the global debate on the regulation of digital means of payment and digital assets, there is a consensus that stablecoins for the general public must be issued by institutions that are properly regulated and supervised in order to preserve financial stability and to ensure investor protection.
- **Several initiatives are aiming to safeguard national sovereignty in payment services.** If functionality and convenience cause a shift away from national currencies towards foreign ones (“dollarisation”), this can lead to unwanted dependencies and drawbacks for monetary and economic policy. In this context, the Regulated Liability Network² (RLN) project by Citi and other banks could assume the function of a transaction platform for regulated, national digital currencies.
- **Business models in the real economy are increasingly digitalised end to end (“Industry 4.0”).** As long as the necessity to settle payments via interfaces with conventional payment channels persists, however, potential efficiency gains could remain elusive. There is also a risk of compatibility issues (media breaks) and further fragmentation resulting from differing technological and legal bases. Innovations in payment settlement are therefore focusing on DLT, which allows economic activities to be digitalised without any concerns about compatibility.

These developments, which the SBA already touched upon in its 2021 discussion paper³ on digital currencies, raise the questions of which basic concept is best for supporting the Swiss economy in the settlement of digital asset transactions and payments in a digitalised economy, and how the CHF economic area can at the same time maintain its sovereignty. These questions lie at the heart of the DT concept, which is explained in depth in the next section.

2 <https://regulatedliabilitynetwork.org/>.

3 [SBA – New currencies for Switzerland? The challenges of a digital franc and private stablecoins for Swiss banks \(June 2021\)](#).

2 The Deposit Token Idea

Commercial banks in developed economies have for many years provided their clients with an important and proven instrument for increasing the money supply and thus creating value: **deposits**. Deposits play a pivotal role in the implementation of the central bank’s monetary policy. If this is to remain the case in a tokenised financial system, a digital Swiss franc must resemble conventional deposits as much as possible, at least from an economic perspective. That is why this white paper discusses the economic, legal and technical specifications of a DT.

The DT is “**programmable money**”, i.e. a purely digital form of Swiss franc that can be enhanced with programmable functions. It should be based on public **blockchain technology**, the most widespread form of DLT, and **smart contract features**. Smart contracts are generally open source and thus transparent. They can be freely combined, thereby allowing for more complex applications, while largely eliminating settlement

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and counterparty risks. This unleashes the potential for efficiency and innovation contained in the use cases described in section 3 below. In addition, advantages for private households and companies stem from the availability, usability, reliability and security of payments as well as longer operating hours.

One of the main use cases for this new type of money is its widespread deployment as a means of payment (the “**cash leg**”) for buying and selling a tokenised asset (the “**asset leg**”). A trusted, widely accepted means of payment that allows the cash and asset legs to be processed on the same platform without compatibility issues increases the efficiency and potential of these kinds of transactions. Trading in digital assets (in the short term); transactions in a CHF DLT-based financial ecosystem (in the medium term); and transactions executed by machines within the Internet of Things, on Web3 and in the Metaverse (in the more distant future) need this compatibility and integration. They enable “**delivery-versus-payment**” (DvP) functionality and thus simultaneous (“**atomic**”) settlement, which minimises settlement and counterparty risks. Establishing DLT as the basis for settling financial transactions (e.g. in shares, bonds, structured products and derivatives) also represents a potentially significant innovation that could lead to considerable efficiency gains, for example in the context of corporate actions. This could potentially result in lucrative and highly innovative technological advances for both the financial sector and the real economy.

Thus, if the economy shifts further towards tokenisation, it will be essential to have a generally accepted, efficient and trusted means of payment for settling the cash leg. As mentioned above, various pilot projects are currently exploring the feasibility of stablecoins or specially developed wholesale CBDCs for this purpose. A less common approach that is also being discussed involves “**trigger solutions**” for these transactions via traditional, centralised payment systems such as Swiss Interbank Clearing (SIC).⁴

⁴ In December 2022, key players in the Swiss financial industry successfully developed and tested a novel settlement mechanism for tokenised investment products on a public blockchain testnet infrastructure ([Capital Markets and Technology Association press release, 13 December 2022](#)).

Unfortunately, many private stablecoins are anything but stable because they are not adequately backed, or because providers make claims about reserves that are simply not true. Moreover, they are unlikely to gain broad acceptance because they lack the **official and regulated nature of conventional money**. An alternative

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that guarantees the required reliability and enjoys sufficiently broad legitimation like conventional money is therefore needed. It is crucial to point out that efforts to develop such alternatives do not in any way challenge the SNB's sole authority to issue digital central bank money.

The DT idea instead focuses on the need of many companies and households for a customised, **digital Swiss franc** that is **issued by regulated and adequately supervised intermediaries**. It could ensure stability and create a basis for widespread acceptance, which in turn would make Switzerland's financial market infrastructure more competitive and help the country to preserve its economic and technological sovereignty. The main question regarding this commercial bank-issued digital franc is which form it should take to maximise its potential. To find the answer, looking at potential use cases for a DT is a good starting point.

3 Selected Deposit Token Use Cases

In the following section we outline a selection of currently envisaged use cases in which a DT could be widely employed. Many more areas of application are likely to emerge over time. The development of a DT is thus, to a certain extent, a bet on the future – as is the case for any innovation. The use cases are presented in order of their assumed direct potential.



The DT as the cash leg for digital asset transactions

Many projects in the financial industry are currently centred on the tokenisation of securities and other financial instruments in the hope of achieving efficiency gains through innovation in the value chain, including the attendant control processes. However, such transactions are at present still being settled in existing systems or by using proprietary stablecoins that are fully backed by reserves. Both approaches leave some potential efficiency gains untapped due to unavoidable media breaks and inefficient capital allocation. In addition, many private stablecoins from single issuers, some of which are exclusively built for closed ecosystems, are not scalable due to the issuer risk and lack of network effects.

One example is trading in digital securities on public blockchains such as Ethereum, where only the security exists as a token, making simultaneous settlement impossible and thus increasing the operational complexity and risks. The need to handle corporate actions (e.g. dividends) complicates the problem further.

A DT, on the other hand, would allow for fully automated, simultaneous settlement of digital asset transactions and thereby reduce the settlement risks and the need to deposit collateral with the central clearing house. Automated settlement of **corporate actions** would yield particularly large efficiency gains.



The DT as a vehicle for “payments of the future”

In the context of payments, a DT could conceivably be used in three areas. Firstly, it could serve to settle **wallet-based retail payments in combination with smart contracts**, thereby adding value for clients and generating efficiency gains. The DT could also be a catalyst for further innovation, be it in e-commerce, at the client interface or in peer-to-peer transactions. Secondly, the DT could help in **reducing costs and frictions** in payments involving large or very small amounts. For example, a smart contract could be used to enable the direct transfer of ownership with no counter-party risk (DvP) when a car is sold. The lower cost base of open-source technologies would additionally make it possible to reduce the fees charged for transactions involving small amounts, which are often high compared with the transaction value at present. Furthermore, the DT could even allow for micro-payments, such as pay-per-use licence fees or transactions executed by machines within the Internet of Things. Thirdly, the DT could **simplify payments between companies**. Large, infrequent batch payments could be settled on the blockchain with DTs, enabling greater transparency and control while also releasing capital that is tied up in the current system. Using the DT in combination with smart contracts here would also make it possible to replicate specific contractual agreements directly and automate their fulfilment.



A CHF DLT-based financial ecosystem

In a DLT-based financial ecosystem (a form of decentralised finance), **both traditional and new types of financial products can be replicated and settled using smart contracts** via the blockchain. The DT can enhance the maturity of this ecosystem, tap into new applications and make it more attractive for Swiss users by reducing entry barriers and supporting financial transactions in their reference currency (CHF).

Like in the established financial system, DLT-based financial applications allow users to lend and borrow money or trade assets and derivatives, among other things. Possible uses for the DT in a DLT-based financial ecosystem include trading tokens with low market capitalisation on decentralised exchanges and hedging.

4 Legal, Economic and Technical Considerations

Since the DLT Act⁵ created legal certainty in relation to the transfer of claims, the ideal way to ensure that a DT could be used in smart contracts is to design it as a **ledger-based security**, although this gives rise to questions regarding financial market law (in particular whether it qualifies as a security, see section 5 below). Designing it instead as a system of payment instructions, on the other hand, would probably restrict the extent to which the aforementioned economic and technological potential could be harnessed.

The DT in the form of a ledger-based security would be issued as a liability of the issuer. A ledger-based security is a right which, in accordance with a registration agreement, is registered in a securities ledger and may be exercised and transferred only via this securities ledger. It is issued and redeemed via **smart**

With the DT, a Swiss franc remains a Swiss franc, regardless of where it originated from.


contracts. This liability, like conventional deposits, is backed by secure, highly liquid assets (sight deposits with the SNB or money market instruments) on the issuer's balance sheet. This guarantees the DT's **ability to preserve value**


and creates a basis for converting the DT into conventional deposits at par value at any time (convertibility) and for exchanging it for DTs issued by other institutions (fungibility), as is the case with deposits from different banks. A Swiss franc thus remains a Swiss franc, regardless of where it originated from (this is referred to as the “no questions asked” principle).


As with deposits, the degree of money creation depends on the extent and nature of the DT's underlying reserves, among other things. A fully reserve-backed DT, for instance, only generates income from money creation (seigniorage) if it accrues interest at a lower rate than the reserves backing it. If a bank runs into difficulty, there may be a certain risk of assets flowing out of deposits and into the DT if the latter is perceived as being more stable (e.g. because it has a better underlying). However, this would have no impact on the payment system.

The ability to preserve value and effects on money creation are key economic criteria by which any DT design must be measured. There are three main variants of DT with different economic, legal and technical characteristics, which meet these key requirements to different extents.

⁵ Federal Act of 25 September 2020 on the Adaptation of Federal Law to Developments in Distributed Ledger Technology (AS 2021 33).

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1. **“Standardised Token”**: Any interested commercial bank can issue its own DT, which must comply with technical norms and be fully backed by secure and highly liquid reserves.
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2. **“Joint Token”**: A special-purpose vehicle (SPV) jointly owned by the participating commercial banks issues a single DT that is fully or partially backed by secure and highly liquid reserves.
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3. **“Coloured Token”**: Each commercial bank issues its own DT and is free to determine its technological basis and the underlying reserves. The only common feature in this scenario is that all issuers are regulated.

These three variants fit into the landscape of stable digital currencies as follows:

Figure 1:
Comparison of digital forms of money

	Ext. Stablecoins	Retail CBDCs			
Issuers	Unregulated, unsupervised companies	Central banks	(Multiple) individual banks, but with economic and technical standardisation	Consortium of commercial banks via SPV	(Multiple) individual banks
Potential use cases					
Digital asset transactions	Possible	Not possible	Possible	Possible	Possible
Payments	Theoretically possible, but practical implementation unreasonably complex or unclear	Possible	Theoretically possible, but practical implementation unreasonably complex or unclear	Possible	Theoretically possible, but practical implementation unreasonably complex or unclear
CHF DLT-financial ecosystem	Possible	Not possible	Possible	Possible	Theoretically possible, but practical implementation unreasonably complex or unclear
Client protection	Theoretically possible, but practical implementation unreasonably complex or unclear	Possible	Possible	Possible	Possible
Stability/convertibility	Not possible	Possible	Possible	Possible	Theoretically possible, but practical implementation unreasonably complex or unclear
Market penetration/network effects	Not possible	Possible	Possible	Possible	Theoretically possible, but practical implementation unreasonably complex or unclear
Private CHF money creation	Not possible	Not possible	Not possible	Possible	Possible

■ Not possible
 ■ Theoretically possible, but practical implementation unreasonably complex or unclear
 ■ Possible

Source: SBA

Our analysis suggests that a **“joint token”** issued by a jointly owned entity with the requisite licences and supervision is the most promising variant. From the economic point of view, it would offer some choice in terms of backing it with reserves without requiring excessive compromises when it comes to the ability to hold value. This would allow a certain degree of freedom with regards to **money creation**, thus also reducing the pressure to charge for specific services in DT settlement. This in turn would strengthen the **DT’s character as a public good**. A “joint token” would also be able to accrue interest if held in a wallet with a bank, making it very similar economically to conventional deposits. A “joint token” would also make segregating reserves much easier than the “standardised token” variant.

The “coloured token” variant, where banks issue their own DT and decide how to back it with reserves themselves, would come with a high potential for adverse effects, especially in a stress scenario. Users would potentially favour DTs from banks with higher credit ratings. In the event of a high outflow of conventional deposits, this effect could further accentuate a bank run. Another consideration is that people receiving DTs as payment may temporarily not accept them and consequently fungibility among different tokens would be restricted. Given that financial intermediaries can in principle already issue their own programmable money (examples being Sygnum, SDX and SEBA), this variant is not a priority from an industry-wide perspective. In sum, a “coloured token” would result in too much fragmentation and give rise to risks that would be hard to manage.

From a technical standpoint, all the economic and legal requirements that have been identified can be met. Compatibility issues would at most arise in connection with the DT’s underlying assets or different DLT protocols. In principle, the DT should operate on a **public blockchain** with additional protocols to ensure sufficient privacy and transaction efficiency.

To exploit the DT’s full innovation potential, its design should rely on the following **principles**:

- The DT must have **no severe access restrictions** and must guarantee **interoperability** with other platforms. This is best achieved by implementing it on a public blockchain.
- It should be possible to **use the DT as part of decentralised finance applications (composability)**. This means that standardised, open-source software must be used.
- The **ability to accrue interest** and **high efficiency** (including low transaction costs, fast settlement and support for micropayments) are also vital. The DT must be fully **scalable** along these parameters. From a technical point of view, therefore, this implies an implementation on a “layer 2” solution.
- Clients should be able to store the DT **in their own wallet** or use **custody services offered by banks and other providers**.

5 Outlook and Need for Further Analysis

Our analyses conclude that a DT can be a viable means to achieve the goal of ensuring the financial centre's competitiveness and strengthening the digital economy going forward.

Its impact can be summarised as follows:

- The Swiss economy could develop its own digital payments infrastructure.
- The DT would play a key role in the growth of the digital assets business, in Switzerland's strategic positioning in the future of payments, and in shaping the DLT-based financial ecosystem.
- The Swiss economy would have an instrument at its disposal for building and maintaining its own ecosystems that add value for clients.
- An equivalent to conventional deposits would arise that transposes the tried-and-tested system of regulated money creation to the digital economy.
- Further potential for innovation would be unlocked, together with new strategic options, business models and sources of income that are hard to predict as of today.

The DT must meet **legal and regulatory requirements** while also fulfilling clients' need for **confidentiality** and **privacy**. The following **issues** must therefore be resolved to permit the further development of the DT concept:

- The DT's status as a ledger-based security under civil law could cause it to **qualify as a security** under supervisory law – which would particularly mean that a prospectus would have to be produced to offer it publicly and that trading would be subject to regulatory restrictions. A binding answer as to whether this is the case must be obtained from FINMA or from the legislature. If it were classified as a security, the DT would be subject to restrictions that would almost totally cancel out its economic and technical potential.
- FINMA stipulated additional requirements for supervised Swiss institutions that want to issue stablecoins in its 2021 Annual Report. All persons involved in the transaction chain, for example, must be identified

The DT must meet legal and regulatory requirements while also fulfilling clients' need for confidentiality and privacy.

in order to comply with the **due diligence obligations under the anti-money laundering legislation**. It appears that FINMA only requires banks to comply with these obligations, which are far more restrictive than the Travel Rule. **This leads to an unlevel playing field**. Furthermore, applying the law in this way is **not technology-**

neutral since there is no such requirement for cash. Far less restrictive measures – such as the technical integration of sanction lists – could be an efficient way to minimise the risks of money laundering and terrorist financing in DLT systems. It is essential to clarify these issues with the authorities and to achieve legal harmonisation before a DT is issued. At the same time, sufficient confidentiality and privacy must be assured.

The work done to date has excluded some aspects that require **further analysis**. These include the following:

- The impact of the DT on **balance sheet, financial and risk metrics**, in particular for banks, including the regulatory implications (e.g. capital adequacy requirements) and possible effects on market structure, financial stability and monetary policy.
- The **interfaces** between the public blockchain and existing financial market infrastructure systems.
- The DT's suitability for **cross-border business** (including any implementation of technical barriers to reduce risks that may initially arise in other jurisdictions due to the still unclear implications of the DT).
- **Governance aspects** and other implications that depend on the chosen variant.

Feasibility studies are also needed to drive the DT concept forward. They must be accompanied by a dialogue with the relevant authorities to clarify the legal and regulatory issues. To this end, the SBA is committed to continuing its work on a DT together with its members.

Glossary

Blockchain: Essentially a publicly accessible form of distributed ledger in which transactions are grouped and recorded in blocks, which then in turn are chained together. The length of a chain and thus the ledger increases with every transaction.

Central bank digital currency (CBDC): Digital money issued by a central bank is referred to as a digital central bank currency. There are basically two areas of application for such a currency: either the central bank grants the general public access to the CBDC (“retail CBDC”), or it only makes it available to commercial banks and other financial market participants (“wholesale CBDC”).

Clearing: The settlement of bilateral or multilateral obligations arising from trading in financial assets between market participants. All parties’ claims, liabilities and delivery requirements are defined as part of the clearing process. In the case of a DT, clearing would take place on a blockchain.

Decentralised finance: The provision of financial services (loans, mortgages, investments, insurance etc.) via a DLT-based infrastructure that, in its purest form, would have no need for intermediaries and could be almost entirely decentralised – although many hybrid forms are possible.

Distributed ledger: A system in which transactions and other information are recorded, with multiple identical copies stored in different places and synchronised using consensus-based rules.

DLT-based financial ecosystem: A form of decentralised finance in which banks, exchanges and other centralised intermediaries play an important role. In the authors’ view and against the backdrop of the global debate on regulation, this currently represents the most promising path to viable and widely accepted use cases for decentralised finance.

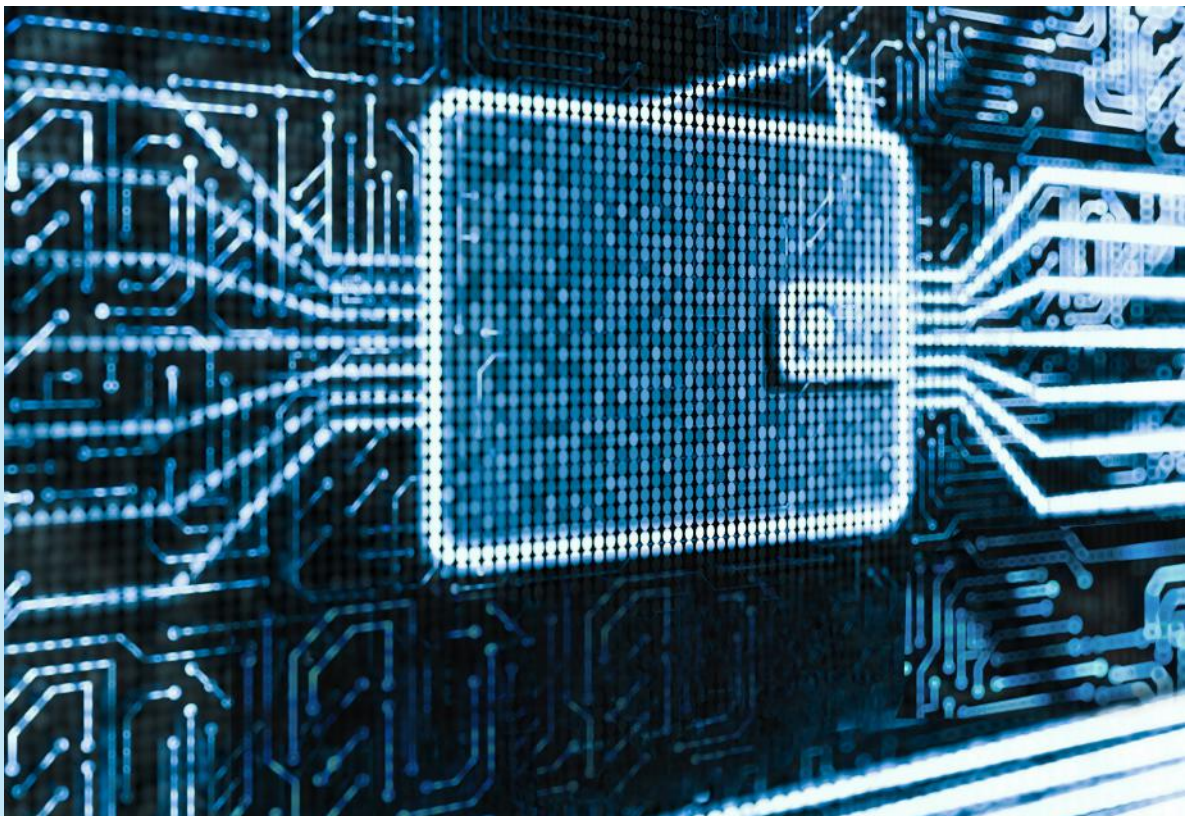
Crypto: A generic term for the universe of applications featuring decentralised structures, cryptographic mechanisms, consensus-based rules and authentication requirements. In a narrower sense, it often denotes applications that are not linked to assets or claims in the real economy.

Smart contract: A contractual agreement in the form of a computer program that can be executed automatically, directly and with no risk of manipulation. Smart contracts are generally stored on a blockchain and executed in parallel according to the consensus-based rules of the system. They offer a high degree of security because they are always executed as specified, and anyone can check the resulting state changes. This makes them transparent and minimises the risk of manipulation and arbitrary intervention.

Stablecoin: A form of token that has its value pegged to that of another asset – e.g. a fiat currency, a basket of currencies or a commodity – without necessarily being backed by that asset.

Token: A unit of digital information embodying a legal right or, as in the case of Bitcoin, an intangible asset in purely digital form.

Wallet: A digital store of payment and authentication information that can be used to execute transactions, often peer-to-peer, i.e. without the involvement of a central counterparty.



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