# Tokenization of Assets

Decentralized Finance (DeFi)

Volume 1
Spot on: Fundraising & StableCoins in Switzerland

EY
Building a better working world

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# Introduction

In today's digital and globalized world, companies such as financial institutions are experiencing a strong pressure on cost reduction and business optimization, therefore businesses try to explore digital solutions to create new revenue streams and optimize existing legacy systems with the support of emerging technologies.

While some digital solutions can simply be adopted by businesses and existing regulatory frameworks, others require a deeper understanding of the underlying technology itself and implications associated with them.

The tokenization process marks a promising solution in converting rights to an asset into a unique digital representation - a token.

Throughout this publication, a high-level introduction into a world with Tokenization is given, and it marks the beginning of a series of EY publications to shed light on possible applications of Tokenization from a legal, regulatory, compliance, business, accounting and technology perspective. To start with, two established focus fields from the financial world were selected, to walk the reader through the complexity of creating digital representations through Distributed Ledger Technologies (DLT)-based Token and to explore the possibility to reinvent the way companies perform business.


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The innovational spirit, quality of life, size , available highly educated workforce and supportive tax and regulatory environment make Switzerland an attractive hub for innovative endeavours.

# SWITZERLAND– A FAVORABLE JURISDICTION

## Why to choose Switzerland to launch the tokenization of assets business?

# Switzerland is a global DLT / Blockchain Hub

Switzerland is one of the most advanced countries in the world in terms of Blockchain adaption. It is an international Hub for DLT / Blockchain companies comprising a wide network and profound expertise.  Within this development especially the Finance industry plays a key role to promote a sustainable growth of the DLT / Blockchain market in Switzerland.

**Historically**, a local financial center has been established in Switzerland with a dynamic spirit and a highly developed bank infrastructure. Accordingly, this provides access to equity and venture capital for companies. As example of the technological orientation of the Swiss financial world the Swiss Stock Exchange (SIX) is working on a fully integrated infrastructure for trading settlement and custody of digital assets (SDX).

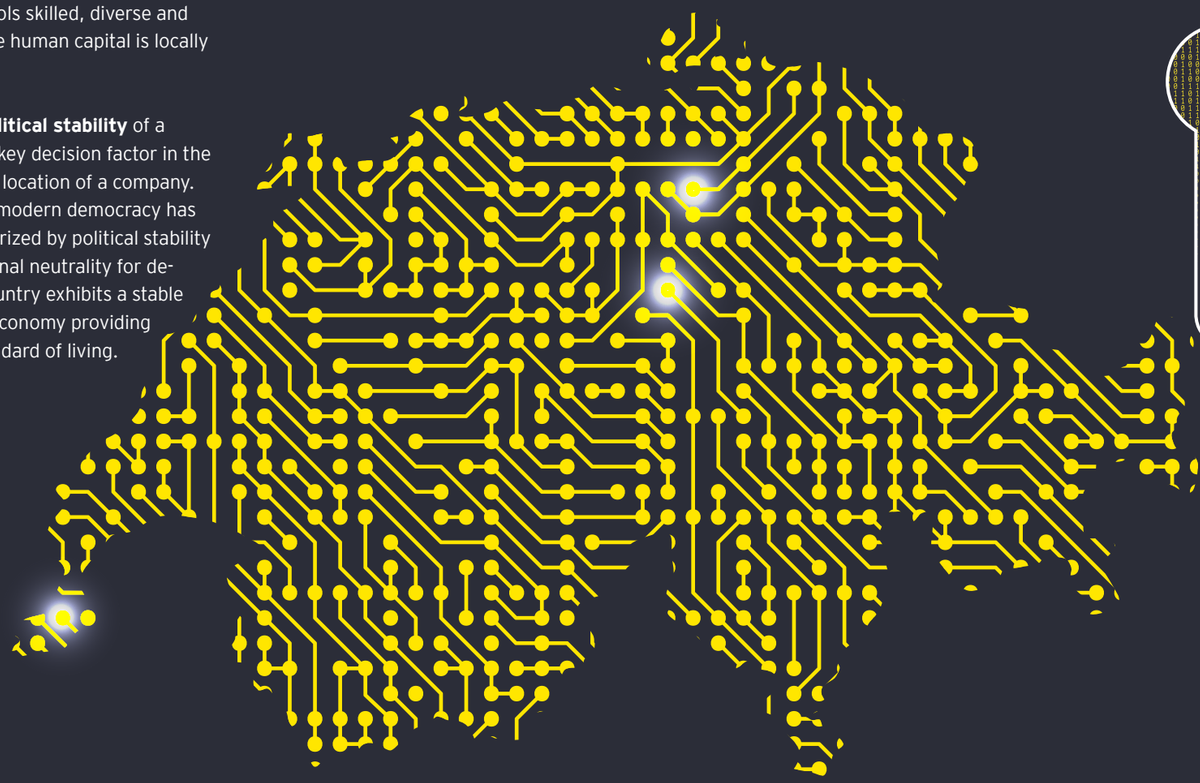
**Infrastructure** is one key factor when deciding where to locate a company offering digital services (or similar). In Switzerland a reliable and sophisticated highspeed network provides for a high and reliable broadband internet coverage allowing global connections.

**Consistent laws and regulations** recognizing the potential of DLT / Blockchain and of other digital developments are one feature that has been promoting Switzerland as DLT / Blockchain hub for years. In 2019 the Swiss Federal Council adopted the dispatch on the further improvement of the framework conditions for DLT/Blockchain, which has been object of detailed consultation in May 2020 by the Commission for Economics and Taxation of the National Council, prior its expected entering parliamentary consultation in summer 2020. The proposal is aimed at increasing legal certainty, removing barriers for applications based on DLT and reducing the risk of abuse. The Swiss Financial Market Authority (FINMA) published ICO guidelines in 2018 and its supplement regarding StableCoins in 2019.

**High educational standards** have supported the development of a knowledge and innovation hub in Switzerland. With its leading technical universities and business schools skilled, diverse and knowledgeable human capital is locally available.

**Social and political stability** of a country are a key decision factor in the search for the location of a company. Switzerland's modern democracy has been characterized by political stability and international neutrality for decades. The country exhibits a stable and growing economy providing for a high standard of living.

Bank Infrastructure
Consistent Laws & Regulations
High Educational Standards
Modern Democracy
Level of Innovation

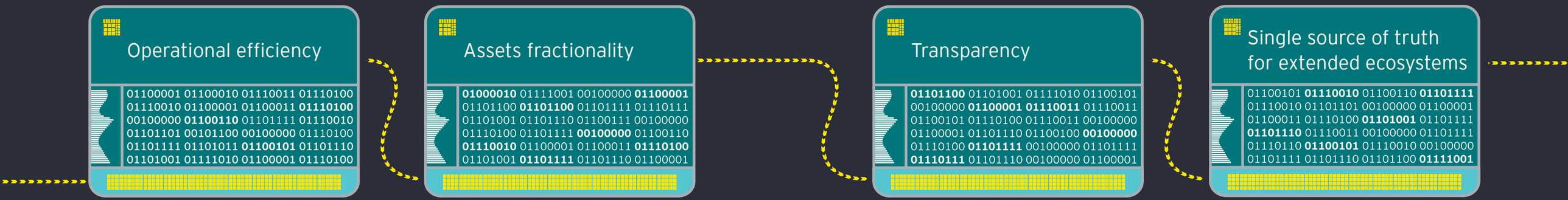


"The Federal Council wishes to exploit the opportunities offered by digitalisation for Switzerland. It wants to create the best possible framework conditions so that Switzerland can establish itself and evolve as a leading, innovative and sustainable location for fintech and Blockchain companies." (Official press release of the Federal council of 14 December 2018)

https://www.admin.ch/gov/en/start/documentation/media-releases.msg-id-73398.html

# The benefits of tokenizing assets are manifold

From higher cost efficiency to leaner trade financing options there are different opportunities arising from the tokenization of assets. At the same time, certain challenges have to be kept in mind.




- By streamlining IT systems, sharing the infrastructure between all participants and without requiring the involvement of a central third party, transaction costs are significantly reduced. The digitalization and automation of manual work along with the reduction of a part of the reconciliation / compliance work also enable to cut inefficiencies.

- In addition, simple send / receive transaction settlement and clearance can be automated and allow fast transactions of down to seconds, where traditionally hours or days were required.

- Both options lead to an increase in efficiency of single transaction handling and allow an optimization of the market itself. Handling tokenized assets creates a more efficient market and optimizes the way assets and services can be exchanged.

- By allowing to fractionalize assets and to own and perform actions over only a portion of an asset, DLT / Blockchain enables a greater liquidity. By cutting down barriers to investment, a wider range of people can buy / invest in assets. In traditionally rather illiquid markets (e.g. real estate, fine art) this technology can help sellers to find more easily an counterpart to perform a transaction

- It also supports inclusive finance by opening up the invest market to a wider range of investors. As no intermediary function is required any more, investors have now access to investing opportunities whose participation used to be limited due to geographical and infrastructural reasons or due to high minimum investment thresholds. Now, the access to financial markets and a variety of new kinds of assets has been enabled regardless of the location of an investor and with much lower minimum capital requirements.

- Fractioning assets also introduces the notion of shared ownership where multiple people can buy together an asset and use it, which is key in a society where usage is more and more supplementing ownership. For instance, people can buy together a holiday house and decide between themselves who will use it which week.

- DLT / Blockchain introduces transparency by default, as all transactions occurring on a Blockchain infrastructure are accessible to all its participants (limited to the perimeter of a DLT / Blockchain, meaning that everyone can see it on public Blockchains while only authorized participants can have access on private Blockchains). This property is inherited by all tokens representing assets on Blockchain.

- For physical assets, this transparency allows to an improved traceability and to provide trust over the provenance and origin, by allowing any user to review the whole history of activities performed over the asset. Ownership over a given asset, and the associated chain of ownership can therefore be easily be identified.

- However, transparency is not systematically acceptable, and is even antagonistic with the mere goal of some use case, for instance in the asset management industry or when competitors use the same infrastructure. In these cases, some privacy-enhancing technologies can be used to avoid leaking any sensitive information to other participants to a network.

- In the past and current world, corporates obtain a significant amount of data for each asset, but it appears to be constantly challenging to map and inter-link data points such as intellectual properties, rights, licenses, ownership to individual products. Thereby, mostly fragmented data points are accessible. These fragmentation makes it economically un-manageable and generates avoidable efforts.

- As DLT / Blockchain introduces a single IT layer of trust for allowing business partners or competitors to share together their data, multiple actors of an ecosystem can interact with the same digital representation of an asset, driving efficiency all along the value chain or industry and introducing new ways of collaboration.

- For instance, multiple initiatives have emerged in the trade finance industry over the last few years to enable companies to share information about assets that are being transferred around the world, automating and simplfying the process for high volume trading through smart contracts.

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Tokenization can be described as the creation of a unique digital representation of an asset. While the concept of digitalization is not new,  DLT/Blockchain technology adds an additional dimension to it.

# TOKENIZATION BASICS

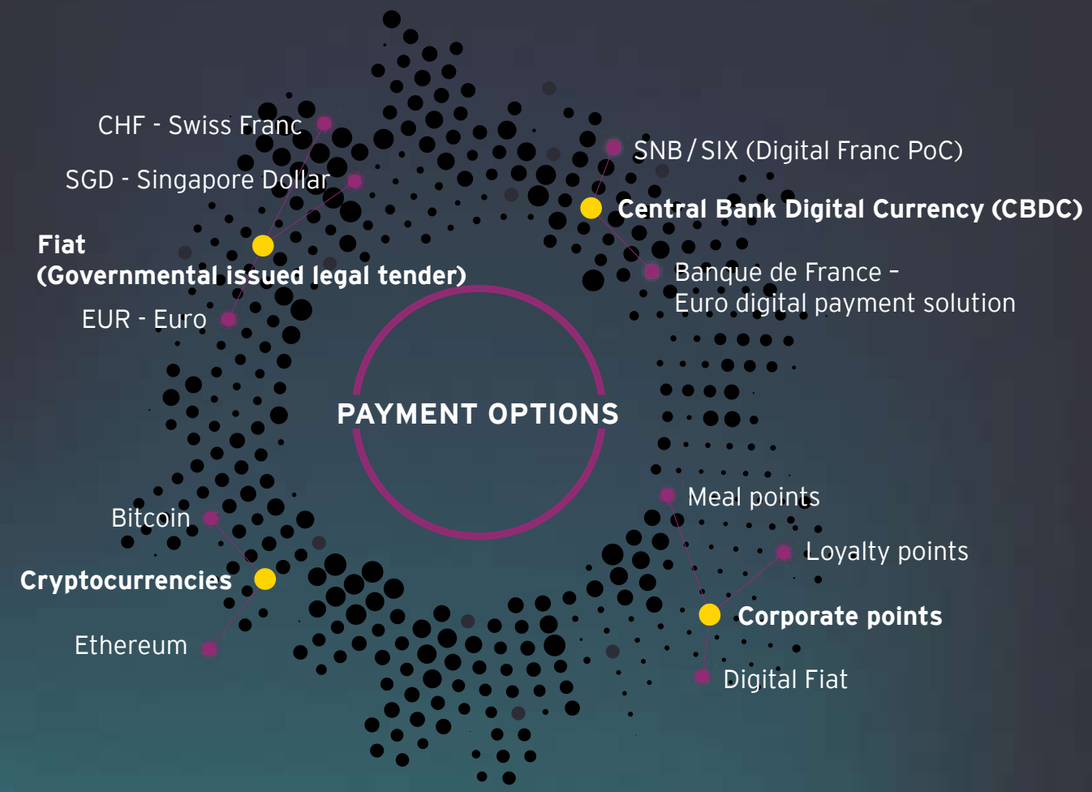
## What is tokenization and how does the technology work?

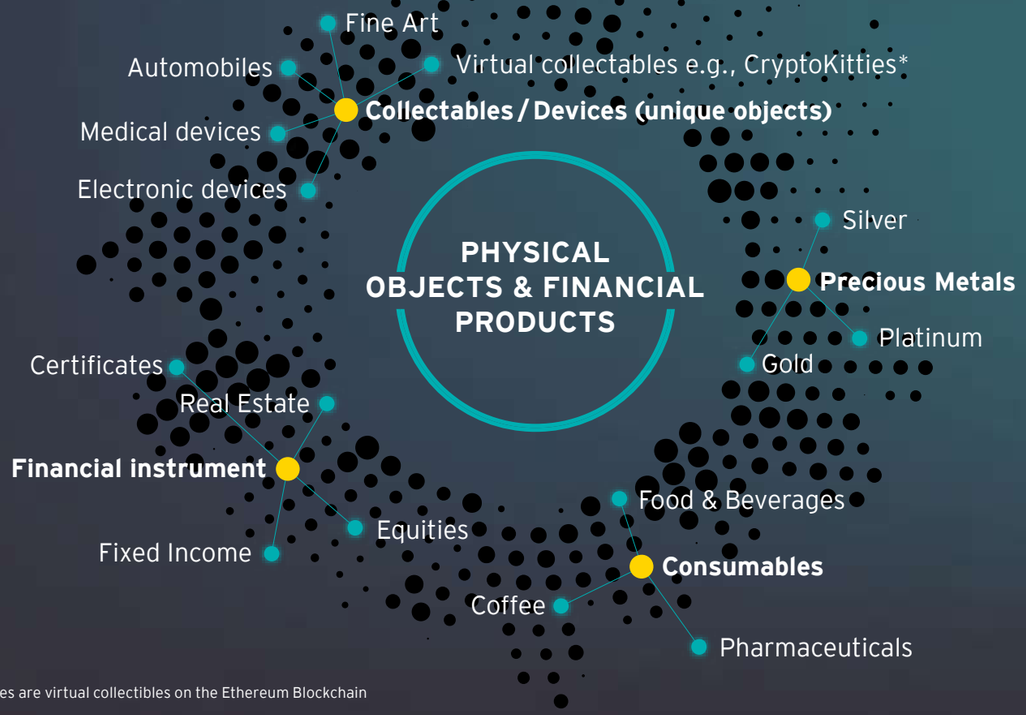
# From metals to licences – the world gets tokenized

The process of tokenization creates a bridge between real-world assets and their trading, strorage and transfer in a digital world. The corresponding basis is built by using the Blockchain technology.

In the most abstract form, tokenization converts the value stored in tangible or intangible object into a token that usually can be manipulated along a DLT / Blockchain system. In simple words, tokenization can turn almost any asset, either real or virtual, into a digital token and enables the digital transfer, ownership and storage without the necessary need of a central third party / intermediary..

A digital token can thereby be described as a piece of software with a unique asset reference, properties and / or legal rights attached. Even though, similar pieces of software can be done the fact that a token runs on DLT / Blockchain differentiates it from other digitalization methods. Using a DLT / Blockchain to create a digital token enables the collaboration of different companies, which in turn allows the aggregation of otherwise fragmented information into one digital token. Moreover, all parties can update information seamlessly and verify their correctness.




*CryptoKitties are virtual collectibles on the Ethereum Blockchain

Tokenization can turn almost any asset, either real or virtual, into a digital token

# Precious Metals

**PHYSICAL OBJECTS & FINANCIAL PRODUCTS**

The market for gold is rather liquid, however other precious metal markets (e.g., palladium) tend to be illiquid. In illiquid markets larger corporates may settle bilateral agreements, limiting price discovery and fostering information asymmetries. High entry barriers (i.e., minimum investments) limit market access to few participants. Furthermore, international regulation increased and thus the need for tracing the metals from production to customer over the whole supply chain.

Tokenization allows for fractionalization, therefore reducing entry barriers and boosting access to new markets for smaller players. The increased market participation may result in additional market liquidity. However, the larger number of market participants would require an evolution from bilateral towards multilateral trades. While this is burdensome in the traditional world, DLT supports smart contracts and atomic swaps, allowing for secure and near instant settlement of even complex multiparty trades. The legal enforcement of smart contracts is not yet clear globally but there are circumstances offering legal set-ups circumventing this from being a deal-breaker.

Recent market developments vary. The communication in the ecosystem could be enhanced with solutions such as Komgo, offering a secure, decentralized solution enabling seamless data communication between commodity trade institutions, corporations, inspection companies, and third parties.

The Italian legislator introduced the Law Decree No. 135/2018 – which defined legally binding smart contracts. The UK Jurisdiction taskforce issued "legal statement on cryptoassets and smart contracts" smart contracts may under certain circumstances be treated as in principle not being different from conventional contract.

# Central Bank Digital Currency


The use of banknotes is declining in advanced economies, questioning the Central Banks' role in payment intermediation. At the same time in developing countries alternatives are emerging with the development of technology, such as mobile payment, accessible even for previously unbanked. Furthermore, progress is pushing for exploration of DLT/ Blockchain implementation by Central Banks.

Central Bank Digital Currencies (CBDC) are a new form of money issued digitally by the Central Bank. Basically, money is a special form of a promise to pay and serves as store of value, a medium of exchange, and a unit of account. Physical cash offers a certain level of privacy that digital money does not.

CBDC could be account or token based, issued centrally or decentrally, and are generally split into two major categories, based on a slightly different business purpose:

Wholesale CBDC
shall mainly increase efficiency for financial transactions among selected participants, albeit early experimentation has not yet proven significant benefits. Wholesale CBDC aim at processing large volumes with few transactions, sometimes on specific dates.

Retail CBDC
are deemed for wider adoption in the general public, for instance to facilitate retail payments, this would e.g. raise AML / CFT concerns and requirements. Such CBDC need to accommodate large number of transactions with relative low volume.

A study of late 2019 by the International Monetary Fund (IMF) and the Central Bank of England explored additional, design options:

- Either with zero-interest to avoid direct competition with retail bank deposit
- With positive or negative interests that could generate a direct competition for cash and deposit but could open a new way to handle monetary policies

70% of Central Banks are (or will soon be) engaged in some type of CBDC exploration. The adoption of CBDC depends on a perceived net benefit of its introduction. Digital currency can fulfill to a certain extent the traditional roles of money (unit of account, means of payment and store of value), however Central Banks may also support public policy goals.

Currently, most researches being performed cover the challenges faced by the introduction of CBDC, for instance how to balance privacy concerns, bank secrecy laws and transparency improvement. For the time being Denmark and Switzerland have determined that the costs of a retail CBDC would outweight the benefits. The traditional systems have been optimized over time and may already deliver upon demand. Fast Payment Systems (FPS) allowing for almost real time capabilities, are already present in 55 jurisdictions. In 2019 SWIFT demonstrated that cross-border payments can be completed in less than 25 seconds (source: https://www.swift.com/news-events/press-releases/swift-sees-success-with-global-instant-cross-border-payments-with-singapore_s-fast).

However, the UK FSP, which has been operating for 10 years, processed only around 30 payments per capita in 2018.

CBDC is often associated with DLT/Blockchain technology, however, it does not necessarily mean that it could not be built using a more conventional centralized technology.

## Examples of CBDC projects:

| Who | Project |
|---|---|
| **Bank of Canada** | Project Jasper - is a collaborative research initiative between the public and private sectors to understand how DLT could transform the wholesale payments system. |
| **Banque de France, European Central Bank (ECB)** | Are quite open for experiments together with the ECB and other central banks of the Eurosystem, in particular with regard to a wholesale CBDC. |
| **Central Bank Group** | The Bank of Canada, the Bank of England, the Bank of Japan, the European Central Bank, the Sveriges Riksbank and the Swiss National Bank, together with the Bank for International Settlements (BIS), have created a group to share experiences as they assess the potential cases for central bank digital currency (CBDC) in their home jurisdictions. |
| **Central Bank of Brazil** | Project Salt - is exploring DLT for an interbank payments contingency and resiliency system as well as a decentralized information exchange platform (Project PIER). |
| **Central Bank of Iceland** | Rafkróna - is exploring |
| **Central Bank of the Bahamas** | Sand Dollar - was introduced on 27.12.2019 with the intent of accelerating payments system reform, admitting new categories of financial services providers and using the digital payments infrastructure to make the supply of traditional banking services accessible to all segments of the population. Most of the benefits of introducing a digital currency are still unquantifiable. However, they may include a potential suppression of economic costs associated with cash usage, and benefits to the Government from improved expenditure and tax administration systems. |
| **Central Bank of Tunisia** | E-Dinar - is used to study the opportunities and risks inherent in these new technologies, particularly in terms of cyber security and financial stability. |
| **ECB, Bank of Japan** | Project Stella - explores whether DLT / Blockchain technology can improve domestic interbank payments and settlements and facilitate rapid interbank trading and settlement of securities for cash. |
| **German Central Bank** | BLOCKBASTER prototype and other efforts are exploring DLT for multiple purposes including for improving efficiency and reducing risk in interbank securities settlement processes. |
| **Monetary Authority of Singapore** | Project Ubin - is a collaborative project with the banking sector, exploring the use of DLT for clearing and settlement of payments and securities, as well as new methods of conducting cross-border payments using CBDCs. |
| **Peoples Bank of China** | Digital Currency Electronic Payment (DCEP) - is proposed a two tier system, centrally issued, backed 1:1 by fiat currency |
| **Republic of the Marshall Islands** | Introduced a new DLT / Blockchain based currency called the Sovereign ('SOV') in February 2018 after issuing the Sovereign Currency Act of 2018. |
| **Sweden Central Bank** | E- Krona - a one year project launched in 2020 adressing concerns regarding the oboslecense of physical cash in Sweden and its consequences. |
| **Swiss National Bank** | The Swiss Exchange (SIX) and the Swiss National Bank (SNB) are working on a proof of concept to explore how digital central bank money could be used in the settlement of tokenized assets between market participants. |

### Possible benefits of CBDC

- Lowers issuance cost
- Easier distribution than fiat currency
- Programmability (more efficient and flexible)
- Real time transfer (at low cost)
- Better clearing & settlement process
- Enhanced traceability and monitoring
- Real time data collection, such as creation, bookkeeping and circulation of money, providing useful reference for monetary policy makers
- Addressing the consequences of a decline of cash
- Improving the availability and usability of central bank money

# How to tokenize real-world assets?

Non-fungible tokens representing real-world assets like art or real estate gain an increasing momentum.

Today the most common application of tokens that exist on DLT / Blockchains are tokens that are fungible of nature, like cryptocurrencies or ingots of gold. Fungible means that each unit of a good or commodity is interchangeable with any other unit. So, for example one kilo of pure gold is interchangeable with any other kilo of pure gold.

However, a new application concept of DLT / Blockchain technology is causing a lot of buzz and gaining momentum: the tokenization of real-world assets. Opposite to the above-mentioned fungible tokens these new so called non-fungible tokens (NFTs) represent assets and items which are per definitionem unique, irreplaceable and non-interchangeable.

The attributes which are represented by NFTs can vary comprising unique serial numbers on the one hand but also more dynamic information like location, size or consistency of the product itself on the other hand.

Early examples of products represented on a DLT / Blockchain by NFTs are physical items like bottles of wine, jewelry or pharmaceuticals which are part of a standardized supply chain from manufacturer or producer to consumer. The tokenization of the items allows for a real-time tracking of the products and enables the producer to identify possible fraudulent use.

The financial industry, and especially the asset management sector, is demonstrating a lot of interest on how NFTs can be used to engineer or represent investment products. Real estate is a particularly good example of real-world asset that can be represented using NFTs as there are no two parcels which are the same or have the same address. Accordingly, direct ownership of land could be represented on an NFT under the condition that the regulatory environment is shaped accordingly.

However, in light of the market focusing on oeuvres by "Old Masters" as alternative investment vehicle NFTs start to awaken interest. By representing the art pieces on tokens the respective transactions can comprise a broader group of investors. Moreover, authentication procedures, tracking of transport and restoration processes as well as their trade can be simplified as will be explained in more detail in the following chapters.

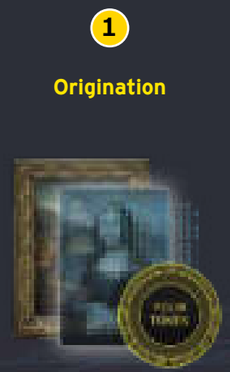
As most of this world's assets are unique their representation, NFTs will play an increasingly important role in ushering in the next era of the digital economy and supporting enterprise adoption of DLT / Blockchain to digitally represent their assets.

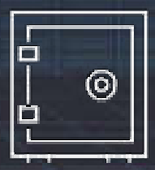
Read here how NTFs can create value for enterprises:

https://www.ey.com/en_us/financial-services/how-non-fungible-tokens-can-create-value-for-enterprises

# Tokenization requires a solid infrastructure

Tokenization triggers changes in the securities trading value chain. While the sequence remains unchanged the individual steps may vary. Major differences are related to the characteristics of the underlying DLT/Blockchain technology allowing new business models and market participants to enter.





| | 1 Origination | 2 Distribution | 3 Trading | 4 Clearing | 5 Settlement | 6 Safekeeping | 7 Additional Financial Services |
|---|---|---|---|---|---|---|---|
| | **Issuance** | | **Trading (Buy / Sell)** | | | **Additional Banking Services** | |
| **Traditional Value Chain** | ▸ Issuance market of securities is restricted and handled to a large extent by investment banks<br>▸ Mature methodology to issue securities | ▸ Distribution handled by issuing institution<br>▸ Primary market access only to authorized investors | ▸ Secondary market handled by stock exchanges and regulated institutions e.g., investment firm and broker<br>▸ Trading execution only possible through specific time frames e.g., opening hours | ▸ Ensure that involved parties fulfill obligations as set out in the contract<br>▸ Match buyer and seller data for every transaction | ▸ Transfer securities from seller to buyer against payments to fulfill contractual obligations | ▸ Store securities in a safe location either self-directed or at a custodian, e.g. financial institution or a depository | ▸ Basic additional financial services such as tax, reporting, accounting, corporate actions and collateral management do not differ in principle between the traditional and new reality<br>▸ However, new services bridging the traditional and tokenized world arose e.g. Token-Equity Swaps<br>▸ Further technology related services based on the Blockchain infrastructure itself can appear in the future since subject to research e.g. hard fork related services, governance risks |
| **New Reality: Tokenization Value Chain** | ▸ Issuance not limited to traditional players, instead new player arise such as consultancies, technology SMEs and corporates them selves<br>▸ DLT/Blockchain based Smart Contract enables new launch methods e.g., DeFi | ▸ Distribution can be handled without intermediaries via digital channels<br>▸ Primary market access only limited based on regulatory, but not technical environment | ▸ Stock and Digital Asset Exchanges are still an important market participant, but trading is not limited to established institution due to the peer-to-peer nature of DLT/Blockchain based Token<br>▸ 24h trading execution possible | ▸ Based on the core characteristics of DLT and Blockchain technology clearance and settlement do not require central third parties. Instead both is handled by the technology itself | | ▸ Digital Token can be stored either by trusted 3rd party / custodians or by owners itself, institution or individuum<br>▸ Various ways of Token storage are possible distinguishable between online or offline, dependent if the Token is stored on a device which is connected to the internet or not | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

One common DLT/Blockchain Infrastructure

# Technical approach to tokenize assets

Blockchain technology allows the creation of a digital representation of assets through their tokenization. This process does not differ greatly from other IT projects whereby data models are created to represent assets or goods; however, some precautions need to be taken in order to account for DLT / Blockchain technology specificities.

In simple terms, asset tokenization consists of creating an informatic code presenting the key characteristics of the asset while exposing some functions allowing the user to interact with the digital representation of the asset. On the Ethereum Blockchain, this informatic code is developed in Solidity.

From a technical standpoint, this process can be broken down into 4 key steps:

## A. Selection of the model for representing assets

Several token standards have emerged from the Ethereum community to allow for the representation of different kinds of assets. The introduction of these standards eases the DLT/Blockchain adoption and enables interoperability between multiple DLT/Blockchain initiatives. This allows tokens inheriting from the same token standard (from the same 'family') to use some generic smart contracts or to be stored in some widespread wallets enabling the storage of ownership information.

A token standard consists of a set of predefined functions and/or attributes that can be intentionally implemented to represent the specificities of each asset but need to be present in all cases. To consider which token standard to choose, the key characteristics of the asset (for instance fungible or non-fungible) should be assessed. The most widespread token standards are the following:

| **ERC-20 standard**<br>Fungible tokens (e.g. Ether, Augur, etc.) | **ERC-1400 standard**<br>Security tokens (e.g. data protection and privacy) | **ERC-721 standard**<br>Non-fungible tokens (e.g. crypto-kitties, assets) |
|---|---|---|
| Transfer of value between users | Transfer of ownership of a security token between users, requiring a certificate | Transfer of ownership over a specific asset between users |
| Authorize someone to spend value on one's behalf | For same security token, split between several partitions | Authorize an operator to transfer a specific asset on one's behalf |
| | Authorize an operator to transfer a security token on one's behalf | Authorize an operator to transfer all assets on one's behalf |
| | Manage the documentation associated with a security token | |
| | Force the transfer or redemption of an asset (by a controller) | |

It is important to note that the way an asset is tokenized does not depend only on the asset itself but should integrate the business process that is digitized through DLT/Blockchain. An asset could be tokenized differently depending on the intended use.

For instance, let's consider a car.

- If we look at the car production process, one will be interested in the assembly of the multiple components of the car, its associated information and the operators acting on the production chain.
- If now we consider the leasing of cars, one will pay more attention to who owns the car, who has financial interest over it, how the insurance is managed, etc. without being interested in the components of the car

### Swiss Pioneers - Tokenization of existing shareholdings

The same principles from the car industry example apply to the Swiss financial services industry. The Swiss entity Mt Pelerin Group SA[1] was one of the first companies to issue all of its shares in tokenized form, i.e. in the form of Ethereum tokens.

In this case, the tokenization process had a strong focus on capturing the information about the purchasers of the tokenized shares. Accordingly, the following basic process steps were integrated:

- Individual registration of purchasers in the shareholder's register of Mt Pelerin upon completion of the sale
- Full AML/KYC identification
- Maintenance of a private shareholders' register that has not been replaced by the DLT / Blockchain (although the tokenization would allow to digitize many of the corporate processes), from the registration of share transfers and shareholder identification to certain corporate actions.
- Free transfer of share tokens. However, a potential acquirer of shares is required to apply to the issuer to be registered on the shareholders' register including a full AML/KYC identification process.

It was no coincidence that one of the first companies to tokenize its company shares is located in Switzerland. In 2018, the Swiss Capital Markets and Technology Association (CMTA)[2] published a blueprint on the tokenization of shares of Swiss companies using the Distributed Ledger Technology[3]. In this blueprint the CMTA provided detailed guidelines on how equity securities of Swiss entities can be tokenized and how the process should be structured. The blueprint focused on shares that have already been issued in accordance with Swiss corporate law in uncertificated form. This way the shares and the digital tokens remain closely linked and the shares shall only be transferred together with the corresponding token.

Depending on the use case, the same asset will be represented differently, potentially using different token models.

Another crucial consideration when choosing how an asset should be tokenized is the management of privacy. DLT/Blockchain introduces transparency by default but this transparency is not acceptable for all use cases and industries. In fact, in some cases there are regulatory constraints in this regard (e.g., anti-trust regulation). In such cases, there are privacy-enhancing technologies that can be used to mitigate the transparency and obfuscate information to allow companies to perform DLT/Blockchain transactions in a trustworthy way but without leaking sensitive information.

Zero-knowledge proofs is one of the technologies allowing the performance of private Blockchain transactions, but its use requires the completely revision of how assets will be represented. EY developed a protocol based on zero-knowledge proofs allowing the performance of private transfers of ownership on Ethereum main net, called Nightfall[4]. It was released to the public domain in 2019 as a tool to assist enterprises with the adoption of DLT/Blockchain technology.

It is key to assess how privacy will be managed from the beginning to consider the right model for representing assets and avoid the need to rebuild everything from scratch if this dimension has not been considered sufficiently early.

[1] https://www.mtpelerin.com

[2] https://www.cmta.ch

[3] OECD: The Tokenisation of Assets and Potential Implications for Financial Markets

[4] OECD: https://www.ey.com/en_gl/news/2019/12/ey-releases-third-generation-zero-knowledge-proof-blockchain-technology-to-the-public-domain

## B. Modelling of the asset

Before implementing the token model chosen for representing assets, one must ask several questions that will impact which information will be embedded on chain and which will remain stored in off-chain databases. The following points should at least be considered:

- Are there any legal or regulatory constraints (e.g. data privacy and protection, sector-specific regulation, etc.)?
- What is the level of trust required on the data?
- What is the business process? Which information are essential for the process to happen properly and which have an informative purpose?
- What are the requirements in terms of scalability (volumetry of data)?

This tailoring can include the management of permissioning to call specific functions, adding some additional functions to be consistent with business requirements, the personalization of some generic functions, etc.
Some additional considerations may be needed to develop the specific code and behaviour of the token, depending on the kind of assets considered. For instance, if financial assets are considered, their issuance, the management of the liquidity or the way they will be valued on both primary and secondary markets should be properly engineered.

It is also important to note that the documentation of the behaviour of the token is key for ensuring the adoption and the use of this asset: especially in the case of the issuance of financial assets, a term sheet is frequently released to help investors and/or users understand the functioning and the underlying key concepts of the asset. This term sheet may also be required by regulators to approve the issuance of the digital asset, that is the case in some STO for instance.

[5] https://ey.blockchain.com

[6] https://www.ey.com/en_gl/blockchain/blockchain-platforms

## C. Technical and security review of the informatic code

Before deploying a token in live, some precautions need to be taken due to the immutability of Blockchain and the irreversibility of the development. Indeed, once the code ruling how your asset will behave on DLT/Blockchain has been released, it is not possible to turn back.

An example to bear in mind is what happened in June 2016 with The DAO which was a digital decentralized autonomous organization raising funds through crowdfunding and acting as a venture capital. After raising more than 150 millions of $, some hackers took advantage of vulnerability issues and stole more than the equivalent of 50 millions of $ at the time.

It is then very essential to perform some security reviews, either using standardized tools or mandating specialized third-parties (e.g. Trail of Bits) to perform a review and provide a stamp before going live. EY has developed a smart contract review tool allowing using to test their code against a standard set of checks[5] and offers a spectrum of IT cyber offerings to minimize evolving security risks related smart contract applications.

## D. Deployment of the informatic code

After security review have been performed, the code can simply be deployed on the DLT/Blockchain considered, either public or private depending on the use case and perimeter considered.

These tokens will be able to be issued following the design implemented, automatically or manually, by only one user or by multiple ones. Users will be able to interact with these tokens using the exposed function, by instance to transfer them. They will also store these assets in their wallet, and possibly on DLT/Blockchain custodians to handle the custody of their assets.

In order to follow the lifecycle of these assets, and depending if and how privacy has been implemented, it is possible to rely on DLT/Blockchain monitoring tools. EY has developed a Blockchain Analyzer[6] allowing to track the lifecycle of assets and have access to dashboards and analytics tools to understand what is happening on the DLT/Blockchain.

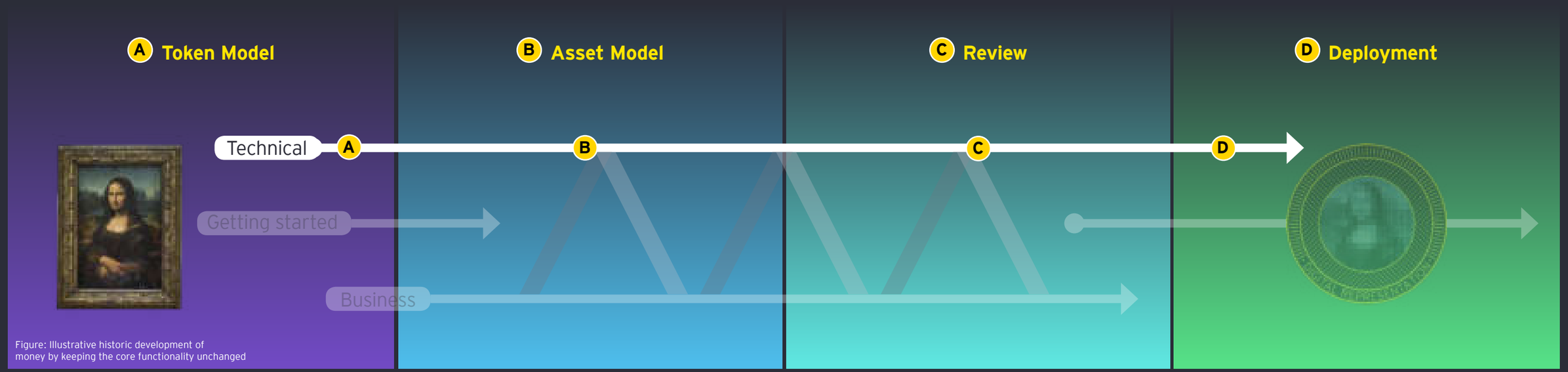



Figure: Illustrative historic development of money by keeping the core functionality unchanged

“

Tokenization has many facets. However, technological innovations require a holistic view comprising the technological, legal, regulatory, tax, accounting and business perspective.

# FOCUS FIELDS

In light of the manifold opportunities the tokenization provides what does your organization need to know?

Spot on:

# FUNDRAISING

How does token-based fundraising compare to traditional set-ups?

# New Capital Markets need faster trading options

The rise in popularity of asset tokenization bridges the gap between traditional and new capital markets. A Security Token Offering (STO) is an evolution of fundraising. What is it about and how is it different to Venture Capital (VC), Initial Public Offering (IPO), or Initial Coin Offering (ICO)?

Earlier, start-ups had the opportunity of reaching out to venture capital firms or angel investors while more established businesses had the privilege of going public through an IPO.

VCs usually seek to invest in promising start-ups as well as small and medium-sized businesses that they believe will have the potential to go public or be likely acquired by a larger company. To founders, thus, venture capital funding can be a blessing or a curse, as VCs are known to also have terms and conditions that are often more beneficial to themselves than to the business owners.

Angel investors are becoming more relevant and better connected, increasing their reach at the start-up level as VCs become more risk-averse and turn their focus to later-stage investing. Technology has enabled new mechanisms such as crowdfunding, which is changing the funding environment at the early seed stages. Angel investors can be a valuable source of funding for early-stage start-ups, because the right angels may also serve to open doors for new investors or partners if they are well-connected in the company's business. Similar to VCs, it is essential to choose angels who suit the business and do not come up with excessively demanding investment terms.

By "going public" via an IPO, in exchange for new capital, a company sells stocks to investors. To undertake an IPO, a corporation would usually have to first work with an underwriter (e.g. a bank) to support it with the public offering. The corporation would then have to go through the vetting to ensure that it is permissible to have its stocks listed on the public stock exchange. For a successful IPO, a corporation would then usually need to undertake extensive road shows with its underwriter(s) and attract as many institutional investors as possible. As IPOs are highly regulated they are very costly and time-consuming and therefore not suitable for smaller and medium-sized businesses.

Financing through an STO has significant structural differences compared with traditional fundraising methods and offers various advantages (e.g., the global reach to a digital distribution of tokens, the quick realization of STO-based financing) and disadvantages (e.g., legal and regulatory uncertainties, untrustworthy early-stage projects).

Contrary to when an investor purchases traditional stocks, their ownership information is kept in a physical document and issued as a certificate. In contrast to traditional sources of financing a STO does not necessarily require a financial intermediary, but can rather be designed as a pure peer-to-peer mechanism.


**What is a Securtiy Token Offering**

A Security Token Offering is a public offering token that is representing a security. The owner of the token obtains e.g., rights in a company or contractual claims to assets as promised by the security. Essentially, tokenization enables startups to raise money without going through an intermediary.

# The regulator's point of view is technology-neutral

Although tokenized assets are represented in the digital world, their true nature and purposes are what counts for the Swiss regulator.

With the advent of DLT the Initial Coin Offering (ICO) appeared. The number of ICOs and the volume of funding grew rapidly[7].Finally a large number of individuals and organizations were able to participate with even very little capital, therefore splitting the risk and permitting a differentiation even within small portfolios. Access to a stock-exchange was no longer required and trading was possible from almost any device connected to the internet with very little fees to be paid. In Q3/2017 the ICO volume had already more than double the volume of Venture Capital[8].

One of the key drivers for the ICO token issuers was the difficulty to find early stage cash as options were quite limited to bank loans, public and private grant and VC. When the ICO market emerged, the main token scheme used was the so-called utility token, offering access to a potential product or services to its owner. However, this kind of token does not provide any guarantee for the investors to get a financial ROI on the short, medium or long term.

A key difference between traditional fundraising method and these new DLT / Blockchain-based fundraising solutions is that the latter addresses early stage projects requiring high investment amount that in many cases cannot be provided solely by bank-loan or VC. In fact, Projects such as Ethereum, Telegram or Binance aimed at building global technology infrastructure, i.e. targeting a new scale by leveraging decentralization and peer-to-peer financing.

While a security token is akin to a digitized stock - whereby the investor that purchases the token becomes a shareholder of the entity from which they purchased the token - the value of the ICO token is derived from the use of the token within the ecosystem set up by the organization.

It is crucial to note that Initial Coin Offerings (ICO), Securities Token Offerings (STO), Initial Exchange Offerings (IEO), Initial decentralized Exchange Offering (IDO) or other are all meant to be token issuances. The Swiss financial markets regulation is principle-based and technology-neutral. Therefore, FINMA's treatment of tokens under supervisory law follows the existing approach taken to DLT / Blockchain-based tokens, meaning that the focus is on the economic function and the purpose of a token ("substance over form").

[7] EY life of a coin, EY research on ICO 2017

[8] EY research on ICO 2018

The FINMA ICO Guidelines for enquiries regarding the regulatory framework for initial coin offerings (ICOs) of 16 February 2018 and the Supplement to the guidelines for enquiries regarding the regulatory framework for initial coin offerings (ICOs) of 11 September 2019, differentiate between the following tokens:

- Payment tokens synonymous with cryptocurrencies, having no further functions or links to other development projects. Tokens may in some cases only develop the necessary functionality and become accepted as a means of payment over a period of time.
- Utility tokens are tokens which are intended to provide digital access to an application or service.
- Asset tokens representing assets such as participations in real physical underlyings, companies, or earnings streams, or an entitlement to dividends or interest payments. In terms of their economic function, the tokens are analogous to equities, bonds or derivatives.
- Hybrid tokes which combine elements of payment / utility / asset token.
- StableCoins (token with specific underlying assets (e.g., currencies, commodities, real estate or securities).

# Are STOs cost-efficient and secure solutions?

When comparing IPOs, STOs and ICOs it becomes evident that cost efficiency and security of the endeavour do not always align.

**IPO vs. STO vs. ICO**

The first issuance of tokens may come in several facettes and names, such as Initial Digital Offering) IDO, Initial Exchange Offering (IEO) and many more will follow. From a Swiss legal & regulatory perspective, applying the principle of substance over form, a classification is essentially based on the underlying. In this regard we support the classification of FINMA in the "ICO Guidelines".

Exemplary comparison of IPO, STO and ICO – since the structure of this fundraising options may vary an exhaustive comparison is not possible. For demonstration purposes an ICO is treated as the issuance of a utility token in the table below.

| | IPO | STO | ICO |
|---|---|---|---|
| Risk | | | |
| Costs | | | |
| Issued | Shares | Token representing securities | Utility token |
| Issuer | Public company | Start-up, public company, SMEs, large companies | Start-up, public company, SMEs |
| Platform | Regulated Stock Exchange | Digital (e.g. website of issuing company or on crypto exchange if IEO) | Digital (e.g. website of issuing company or on crypto exchange if IEO) |
| Participation | Generally, via Broker (e.g. Bank) | Directly | Directly |
| Accepted Funds | Generally, Fiat only | Fiat and/or crypto-assets | Fiat and/or crypto-assets |
| Initiated | Generally, Investment bank to underwrite the IPO | Generally, direct launch to the public without a centralized third party (except if IEO) | Generally, direct launch to the public without a centralized third party (except if IEO) |
| Documentation Requirements | Prospectus, Filings, Registration with the regulator | Prospectus, Filings, Registration with the regulator, website | Whitepaper, website |
| Investor rights | Generally, Voting rights, dividends | Generally, Voting rights, dividends (if structured similar to e.g., shares) | Generally, Limited to digital access to service/application |
| Controlling Authority | Regulator | Regulator | None |
| Underlying | Asset | Asset | None |
| Dividends | Yes | Depending on Token structure | None |
| Credibility | High | Medium | Low |

## Global Top 4 IPO, STO and ICO by raised funds (March 2020)

**Top IPO**

1. Saudi Aramco (25.6bn USD)
2. Alibaba (21.8bn USD)
3. SoftBank Corp (21.3bn USD)
4. NTT Mobile (18.0bn USD)

Source: renaissancecapital.com

**Top STO**

1. tZero (134.0m USD)
2. Proxima Media (100.0m USD)
3. Bolton Coin (67.8m USD)
4. Nexo (52.5m USD)

Source: blockstate.com

**Top ICO**

1. EOS (4bn USD)
2. Telegram (1.7bn USD)
3. Dragon Coin (320m USD)
4. Huobi (320m USD)

Source: Techworld

FUNDRAISING

Legal

# Legal questions related to Security Token Offering

## How are security tokens classified under Swiss financial market law?

The swiss regulator FINMA uses the term "asset token" and not "security token". Asset tokens represent assets such as debt or equity claims on the issuer. Further, they promise e.g. a share in future company earnings or future capital flows. In terms of their economic function, they are thus analogous to equities, bonds or derivatives. Tokens which enable physical assets to be traded on the DLT/Blockchain also fall under this category. Once a token qualifies as asset respectively security token, it is classified as security under Swiss financial market law by FINMA.

## Do prospectus requirements apply to STOs?

The Swiss Financial Services Act (FinSA) provides for a public law prospectus duty. According to such duty issuers of securities must, as a rule, publish a prospectus to be reviewed and approved by a reviewing body authorized by FINMA. This does not apply where the FinSA specifies an exception. The exceptions include (i) offerings to professional investors, (ii) offerings to less than 500 investors, (iii) offerings to investors that invest more than CHF 100,000, (iv) offerings of securities that have a minimal denomination of CHF 100,000 and (v) offerings which are limited to a total amount of CHF 8 Mio.

## Do KYC / AML requirements apply to STOs?

According to FINMA issuers of asset respectively security tokens do generally not fall under the Swiss AML regulation. However, this must be assessed on a case-by-case basis, inter alia since the tokens in question may also qualify as payment tokens with the consequence that the AML regulation would apply.

## What further legal developments need to be considered?

STOs may not only trigger the application of the Swiss financial market laws as contemplated above. Rather, every STO must be analyzed also in view of further financial market law provisions. Such provisions include the banking legislation, the relevant provisions for securities dealers as well as aspects beyond the prospectus duty of the collective investment schemes act and the FinSA.

On 27th November 2019 the Swiss Federal Council adopted a dispatch regarding the further improvement of the framework conditions for DLT/Blockchain. Due to the technology neutral approach of Switzerland, the legal framework is already well suited for DLT, therefore the amendment impacts mostly already enacted federal acts:

- the Swiss Code of Obligations, the possibility of an electronic registration of rights is to be created, which can guarantee the functions of securities. This is intended to increase legal certainty in the transfer of DLT-based assets.
- In the Federal Act on Debt Collection and Bankruptcy, the segregation of crypto-based assets in the event of bankruptcy is to be expressly regulated, also to increase legal certainty.
- In financial market infrastructure law, a new authorisation category for so-called "DLT trading facilities" is to be created. DLT Trading facilities shall allow multilateral trading of standardised DLT securities among regulated financial market participants as well as private customers. Furthermore, it shall permit the provision of custody services[9].
- It should also be possible in future to obtain a licence to operate an organised trading facility as a securities firm. This requires an adaptation of the future Financial Institutions Act.

Beyond, particularly contract, corporate, data protection and tax law issues arise in relation to STOs.

[9] https://www.admin.ch/gov/en/start/documentation/media-releases.msg-id-74420.html

# One token – different perspectives

Different fundraising options are based on different tokens. Each token has its own characteristics. Depending on whether an accounting, tax or indirect tax perspective is applied, the same token can be subject to different classification.

The character of a token is in the eye of the beholder. This lyrical phrase takes aim at the following: The correct accounting and tax treatment of a token depends on its classification, terms and conditions as well as on its underlying case (substance over form). This is of high relevance as fundraising can be accomplished in different ways such as IPOs, ICOs, STOs or with hybrid forms of the beforementioned. In other words different fundraising options are based on different tokens.

In order to understand how tokens are treated for accounting and tax purposes it is decisive to first identify its characteristics. However, as already mentioned, the character of a token is highly dependent on the viewpoint of the observer. An accounting or direct tax specialist would typically focus on the underlying business case represented by a certain token. On the contrary, A VAT expert will base his or her evaluation of any indirect tax consequences of a token on the actual cash flows and the turnover derived from the transactions associated with a certain token. Finally, the intentions of the investor will be decisive in determining the accounting treatment of a token.

Hence, it is not surprising that in certain countries like Switzerland separate qualification guidelines have been issued by the respective authorities for accounting[10], for direct tax[11] as well as for VAT[12] purposes. Unfortunately, this adds to the already high degree of complexity surrounding tokens, as classification grids tend to be rather rigid and thus limited to a certain range of token variations. In practice, therefore, a token classification can be a daunting task, which is however absolutely crucial for the determination of the proper accounting and tax treatment.

## Swiss tax classification of tokens[13]

| | Swiss Direct Tax Categories | Swiss Indirect Tax Categories |
|---|---|---|
| 1 | Equity-like Token | Asset Token |
| | Loan-like Token | |
| | Bond-like Token | |
| | Fund-like Token | |
| | Other underlying / reference value Token (e.g. commodity) | |
| 2 | Payment Token | Payment Token |
| 3 | Utility Token | Utility Token |
| 4 | Hybrid Token | Categorization into the above listed categories |

[10] ExpertSuisse FAQ for accounting under Code of Obligation FINMA for accounting under FINMA accounting ordinance / FINMA circular 2020 / 1

[11] Swiss Federal Tax Administration. Working Paper on Cryptocurrencies and Initial Coin / Token Offerings as part of income and capital taxes, of withholding taxes and of stamp duties.

[12] Swiss Federal Tax Administration. VAT Information 04 on services relating to Blockchain and Distributed-Ledger-Technology

[13] Although the FINMA terminology as mentioned in the chapters before are not binding for direct tax and VAT purposes.

In an unofficial hearing with the SFTA in November 2019, in which EY was present, the tax treatment of projects applying DLT/Blockchain technology has been further discussed. While there is still room for interpretation in different areas the following official publications may provide some guidance. However, it has to be noted that for any project involving DLT/Blockchain Technology it can be beneficial to reach out to the respective Cantonal and Federal tax authorities to discuss the set up and the tax treatment of tokens. Further guidance can be found in the following publications:

- June 2019: Update of the VAT Information 04 on services relating to Blockchain and Distributed-Ledger-Technology
- August 2019: Working Paper on Cryptocurrencies and Initial Coin/Token Offerings as part of income and capital taxes, of withholding taxes and of stamp duties.

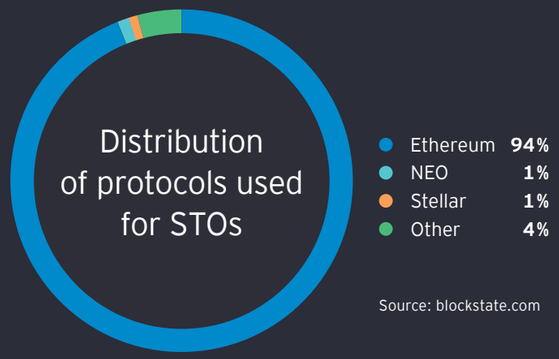
In addition, FINMA published new guidance on the Accounting Treatment of tokens in circular 2020/1

# Selection process in a different context

Raising funds by the issuance of DLT-based Tokens has different technical implications depending on which financing option (IPO, STO or ICO) is applied.

Contrary to IPOs where the technical aspects are not handled by the company itself, STO/ICO issuers are required to handle and structure the technical issuance of tokens on their own or through a specialized company e.g., consultancy, digital assets exchange or technology provider.

When choosing a financing option from a purely technological point of view there are generally two main decisions to be taken into consideration:




Source: blockstate.com

## 1. The choice of the underlying Blockchain where the token will be issued

A major difference between traditional fundraising options (e.g., IPO) and STO, is that for the latter several Blockchain platforms are available. The choice can have considerable impacts from a technical standpoint

By definition, the chosen Blockchain infrastructure needs to include tokenization features and should ideally be a public, permissionless Blockchain to ensure worldwide access without requiring the involvement of additional actors (some restrictions may apply for regulatory considerations). This includes a variety of Blockchains, such as Ethereum, Corda (R3), Tezos, NEO, Stellar EOS, WeOwn, and others.

As the Blockchain infrastructure is the backbone of an STO/ICO ecosystem, the ownership of tokens issued only being represented on it, the reliance on Blockchain infrastructure providers is critical. Consequently, businesses and investors will only be interested in using these tokens if trust is provided towards the Blockchain used, this trust being intrinsically linked with user adoption, total value managed and consensus algorithm of this Blockchain. Additional considerations may include scalability (e.g. amount of transaction handled), privacy features or easiness of use for developers.

Looking at technologies that are mostly used for STO/ICOs, Ethereum appears as current leader in terms of number of projects with more than 94% of STOs performed on it as of June 2019. However, some other Blockchains begin to emerge as contenders, as Tezos which has more than $3 billion worth of STO's announced to be conducted on the protocol  and some major actors announcing that they will prefer Tezos for performing tokenization or even move from Ethereum to Tezos.

Its scalability performance as well as its capability to perform a formal verification of the execution of smart contracts bringing greater trust and security are key differentiating factors.

## 2. The technical representation of the token

As introduced in section technical approach to tokenize assets, various token models can be used when issuing a token.

The most widespread token standard used for ICOs is the ERC-20, which has been a key differentiator for Ethereum's Blockchain and resulted in its choice for most ICOs so far.

As STOs embed additional considerations, especially on the regulatory side, another token standard has emerged for representing tokens issued on Ethereum, the ERC-1400, which includes additional functionalities such as the possibility for a controller to force the transfer of an asset.

Besides the choice of the token, one must also design the token used by personalizing the standard implementation to match the business needs, make it reviewed by security experts and finally deploy it on the chosen Blockchain infrastructure.

Spot on:

# STABLECOINS

What is the concept behind StableCoins and how are they perceived by established markets?

# Conquest of the established asset trading market

The value of StableCoins is frequently linked to an underlying asset. The usual objective of such projects is to minimize the price volatility typical of currently available tokens. StableCoins are not necessarily subject to reduced price volatility nor are they per se safe investments. The risks for investors are always dependent on the specific product and the exact structure. The requirements under supervisory law may differ depending on which assets (e.g., currencies, commodities, real estate or securities) the StableCoin is backed by and the legal rights of its holders.[14]

From both the investor and issuer sides of ICO, IEO and STO token a key issue was the ability to create a stable, trustable and digitally accessible monetary bridge between the crypto and the more traditional fiat world.

This question was raised very early by investors who wanted to mitigate their risks while avoiding tax payment uncertainties due to the lack of regulations. This gave birth to the first StableCoin like Gemini, DAI that pegged their value to the $ guarantying a 1 to 1 equivalence (1 Gemini coin = 1 $). They were in very few cases also designed as an alternative to Bitcoin to acquire some token that were only convertible in Bitcoin. Alternatively, other token digitalizing value to be transferred like gold were also explored as potential solution to create a gap between the physical world and the tokenized one.
Other privately held payment StableCoin initiatives have been launched, with in most cases the ambition to address cross border issues or to other financial inclusion.

- Retail payment StableCoin
- Wholesale payment StableCoin

Finality has also issued its own coin, the Utility Settlement Coin (USC), but does not qualify it as a StableCoin but as a settlement coin that can be used as a clearance and settlement means between corporates and financial institutions.

[14] FINMA, Supplement to the guidelines for enquiries regarding the regulatory framework for initial coin offerings (ICOs) published 11 September 2019.


But all these initiatives had to face the challenge of maintaining a stable value as issuers were not central banks. All the StableCoin still fluctuate struggling to maintain a 1-to-1 equivalence but their volatility is lower than the one of crypto assets such as Bitcoin because they derive their value from their underlying asset. On the other hand, due to their global reach, StableCoins have started to impact historical fiat money and central bank positioning on monetary emission and securization.

## CBDC

Lately many central banks are testing the opportunity to launch a CBDC, either wholesale or retail, but their impact on the payment value chain could be highly different according to jurisdictions and is still under study. The IMF, the European Central Bank, the Central Bank of England have studied the impact of a CBDC with interest rate or with a zero-interest rate, the latter being potentially in position to challenge retail deposits. These CBDC are not to be considered as StableCoins as they consist in a digital representation of an existing fiat money: they should rather be seen as digitized means of payment.

# International response to new challenges

Currently, the legal treatment of StableCoins is subject to discussions on a global level. The development of international regulatory standards for governing StableCoin projects is high on the agenda of the regulators of different countries and international boards.

StableCoins can vary greatly in legal, technical, functional and economic terms. FINMA outlined, that StableCoins are currently not governed by any specific regulations, either globally or in Switzerland. Its current approach is focusing on the economic function and purpose of a token and follows the "same risk, same rules" principle. FINMA found that StableCoin projects frequently trigger Anti-Money Laundering regulation and rise potential licensing requirements under the Banking Act, the Collective Investment Schemes Act or the Financial Market Infrastructure Act.

The Financial Stability Board (FSB) stressed the importance of StableCoin projects with a potentially global reach and magnitude to meet the highest regulatory standards and be subject to prudential supervision and oversight, as a matter of priority. The FSB is currently assessing regulatory gaps and the need of multilateral responses and issued a consultative document on 14.04.2020. However, the FSB also supports the FINMA principles with analogue "same activity – same rules" and technology neutral approach.[15]

The Swiss Federal Council already announced, in the context of StableCoin projects, to welcome discussions in order to develop international standards in relation to the application of new technologies, in particular within the G20.[16] The G7 Working Group on StableCoins announced in October 2019 that due to the linkage of their value to a pool of assets might be more capable of serving as a means of payment and store of value. However, only if significant risks are addressed, because StableCoin with a global scale could pose risks to the financial stability and international monetary system.[17]

Exemplary for a global response could be the FATF recommendations for addressing the money laundering and terrorist financing risk of virtual assets. The FATF recently recognized that StableCoins and their proposed global networks and platforms, could potentially cause a shift in the virtual asset ecosystem and have implications for the money laundering and terrorist financing risks. It is really important that neither StableCoins nor its service providers fall out of scope of AML regulation. Therefore, the FATF will now evaluate the need for clarification of its standard as well as the countries implementation.[18]

The European Council adopted a joint statement[19] on 5 December 2019, warning that no global StableCoin project should be carried out in the EU "until the legal, regulatory and oversight challenges and risks have been adequately identified and addressed." The international response by several involved players reflects the need to find a common global approach to control the risks with the emerging technology.

In next Volume we will perform an in-depth legal analysis.

[15] FSB letter to G20 Finance Ministers and Central Bank Governors of 13.10.2019 and consultative document of 14.04.2020

[16] Press release of the Swiss Federal Council of 16.10.2019

[17] G7 Working Group on Stablecoins "Investigating the impact of global stablecoins"

[18] G7 Working Group on Stablecoins "Investigating the impact of global stablecoins"

[19] Joint statement EU Council and Commission on "stablecoins" of 05.12.2019

# The lifecycle of StableCoins is decisive

The tax and accounting treatment of StableCoins mainly depends on three factors: the underlying asset of the StableCoins, their status within the typical lifecycle of any coin as well as the relevant turnover.

As mentioned in previous chapters, StableCoins may be used in a variety of different ways. In order to ensure that a thorough analysis of the applicable accounting treatment as well as of the possible tax consequences can be undertaken, the following steps can be applied as guiding points:

- Characterization of underlying real-life assets represented by a StableCoin
- Localization of the relevant phase in the lifecycle of the StableCoin
- Definition of all involved parties and the relevant turnover

As with every tokenization project, the accounting and tax analysis starts with the characterization of the asset(s) that are to be tokenized. In a second step, the relevant part of the lifecycle has to be determined as different payment and asset transfer modalities can occur in each of the stages of the lifecycle. Accordingly, depending on the point of view of the respective party – e.g. investor, platform provider and/or issuer - the accounting and tax treatment has to be analyzed for each phase in the lifecycle separately. Using StableCoins as representatives of real-life assets on digital trading platforms is a new way of how businesses and investment processes are structured. Established accounting regulations and tax laws are faced with the limitation of their applicability. Although some legislative guidance has been provided for accounting and tax purposes by the respective legislators.

However, as in the regulatory world, the development of new guiding principles in the tax and accounting sphere is still a work in progress on a national as well as international level. The thorough set-up of a tokenization project, including the abovementioned steps can thus also be taken as an opportunity to get "a word in", in the legislative process as well as in the ongoing regulatory discussions. Overall a thorough accounting and tax analysis of StableCoins comprises many aspects and can be a challenging task. Therefore, in the following, two areas will be presented in more detail which in the experience of the authors of this magazine should be carefully taken into consideration in every StableCoin project. On the one hand the basic principles determining the VAT treatment of StableCoins will be explained providing for some guidance on how to approach this topic as it is a key part when deciding on how to structure a StableCoin project. On the other hand, the decisive role of the choice of the correct accounting model will be described in more detail as the basis of every direct and indirect tax treatment is determined by the underlying accounting treatment of the asset and transaction at hand.

## Spot on VAT

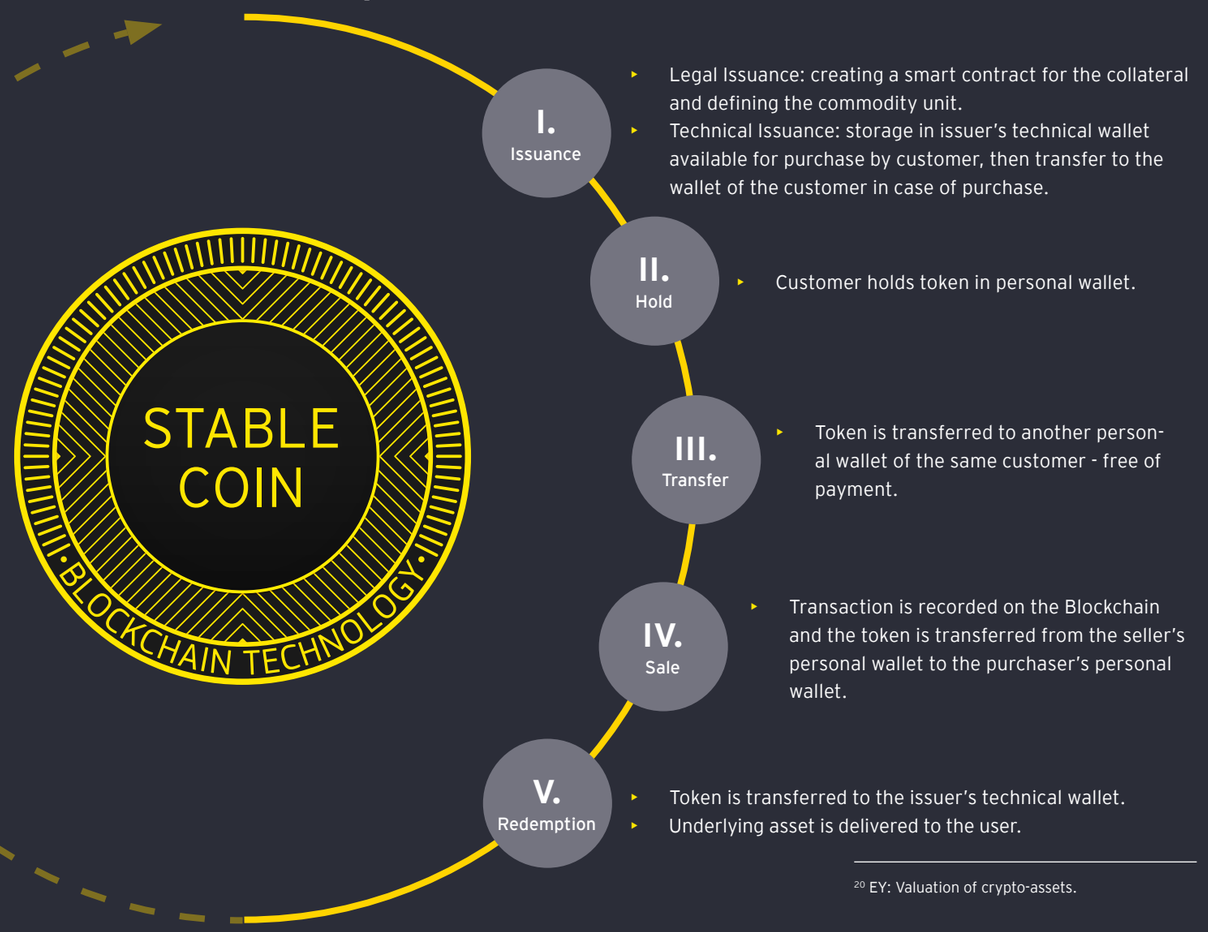
When qualifying a token from a VAT perspective, it is important to keep in mind that the FINMA terminology does not necessarily impact the Swiss VAT qualification. As mentioned in the Fundraising chapter, tokens are generally categorized differently for VAT purposes. However, the practice and guidelines around tokens and VAT are still very new, and as always with VAT, the devil is in the detail. Every token thus has to be analysed separately from a VAT perspective, as even the slightest differences in characteristics can lead to a different VAT outcome.

A perfect example of this is the Hybrid Token. The determination of the VAT treatment of Hybrid Tokens is dependent on the functionality of the token. The SFTA generally assumes that the predominant value of the token lies in its asset (backed) functionality and that the token should thus be treated in accordance with how the underlying asset would be treated from a VAT perspective. However, yet again, in the world of VAT, fee flows are equally important as one of the fundamentals of VAT is that a transaction can only fall within the scope of VAT if there is a "supply" against "consideration/payment".

## Choose the right valuation model

Every tax analysis of StableCoins has to be based on the correct underlying accounting treatment. Depending on the classification of a token and the applicable valuation principle the valuation of a token can be challenging, in particular for tokens representing assets without an observable market price. This concerns the token holder as well as the issuer. Especially "utility tokens" representing the future right to an asset that may still be under development, raise the question whether the booking of a provision is justified from an accounting perspective and accepted by the tax authorities.[20]

## The lifecycle of StableCoins




[20] EY: Valuation of crypto-assets.

# The concept behind StableCoins

StableCoins can generally be divided into three fundamental categories based on their underlying primary stabilisation mechanism: algorythmic, traditional assets collateral and digital assets collateral.

**Stabilisation Mechanisms:**

The three main categories of StableCoins are based on primary stability mechanisms. Further secondary stability mechanisms as outlined in the paper of the European Central Bank (August 2019, Nr. 230) can be applied. Examples include fee based, secondary units, staking, redemption limits, price band.

## Categories of StableCoins

### Digital assets collateral

Ethereum
Digital Tokens

Instead of being pegged by real world collateral, a token might be pegged against one or more cryptocurrencies or crypto-assets. Thereby, the value of the StableCoin is constant to the underlying cryptocurrency/-asset. This is a decentralized system, that can be liquidated quickly and cheaply into underlying crypto collateral, because this would only require a DLT/Blockchain transaction. It is very transparent, since everyone can easily inspect the collateralization ratio of the StableCoin at any point in time. In the event of plumming prices it could be liquidated automatically into the underlying collateral. It is, however, less price stable than Fiat. These StableCoins are rather risky, as they are tied to the health of a particular cryptocurrency (or basket of crypto-currencies).

### Algorithmic

A StableCoin without collateral is among the most innovative approaches. The stabilisation mechanism is based on algorithmic and mathematical driven interventions. The European Central bank outlined in an analysis dated as of August 2019 that the relationship between the innovation of a particular type of StableCoin and its capacity to limit price volatility expressed in a currency of reference are inversely related, meaning that innovative StableCoins are price volatile.[21] For the time being there is no evidence yet that algorithmic StableCoins are capable of withstanding market shocks and maintaining a stable value in the currency of reference.[22]

### Traditional assets collateral

Currencies
Commodities
Real estate
Securities

Collateralized StableCoin projects are expected to actually hold the assets against which their token is pegged (e.g., Fiat, precious metals), i.e., a trusted custodian is required to store the underlying asset to avoid vulnerability to brick and mortar theft. This comes with the requirement of regular audits to ensure transparency for clients. By being pegged to real world collateral, these StableCoins are rather resistant to high levels of volatility.

Further examples for real world collateral are individual properties, real estate portfolios as well as securities.

[21] https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op230~d57946be3b.en.pdf

[22] https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op230~d57946be3b.en.pdf p.5

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The idea of tokenizing assets may generally be perceived as straight forward. The complexity arises due to the different perspectives to be considered - legal, tax, accounting, business and technology. Therefore, it is essential to collaborate with the right partner to lead the project to success.

# GETTING STARTED

## How can EY support your tokenization journey?

# Getting started

No matter where you are, EY is your trusted business advisor in every step of your tokenization journey. and may act as a one-stop-shop combining different skill sets.

## Assurance

EY offers multidisciplinary insights across different business types to help clients mitigate the risk of material misstatement in their financials or design and implement appropriate level of controls for their complete and accurate reporting matters.

**Selected offerings:**

- General assurance services such as external audits, attestation or review services for crypto companies
- Smart contract review
- SOC reports and Internal controls review
- Forensics service
- Accounting advisory for digital asset holdings and transactions

## Consulting

EY assists companies and organizations improving their performance, assisting them to identify and mitigate business risk and giving advice on IT controls.

**Selected offerings:**

- Assessment of product strategy and business planning incl. custody solutions evaluation and asset management products, platform selection, Token Model Design
- Engineering consortium ecosystem including the assessment of potential partners and its incentives
- Assessing risk and control including cyber risks, technology and process risks to facilitate an efficient crypto client onboarding e.g. Token and smart contract review tool

## Tax

EY Tax services exist to help our clients meet all the tax requirements related to their industry, business activities and operating locations in the most financially efficient way.

**Selected offerings:**

- Analysis of Swiss tax consequences, including corporate income taxes, capital taxes, withholding taxes, stamp duties, VAT, individual income and wealth tax
- Meeting with the tax authorities, if required (i.e. Zug Cantonal Tax Authorities and Swiss Federal Tax Administration "SFTA")
- Formal agreement ("tax ruling"), with the tax authorities on the Swiss tax treatment of the projected set-up

## Law

EY offers support understanding and complying with applicable legal and regulatory requirements in Switzerland and around the globe.

**Selected offerings:**

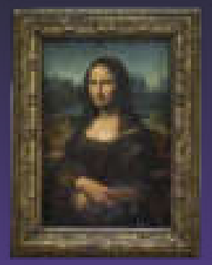
- Issuance support (e.g., token analysis, prospectus review, term sheets, investor agreements)
- Coordination/clearance with national authorities
- Licensing support (e.g. bank, securities firm, financial market infrastructure)
- Establishing/strengthening of governance framework: e.g. policy framework, internal control system and functions, AML/CTF, risk management leveraging EY tools (e.g. Blockchain Analyzer, Legal Managed Services)
- Advising on cross border regulatory considerations

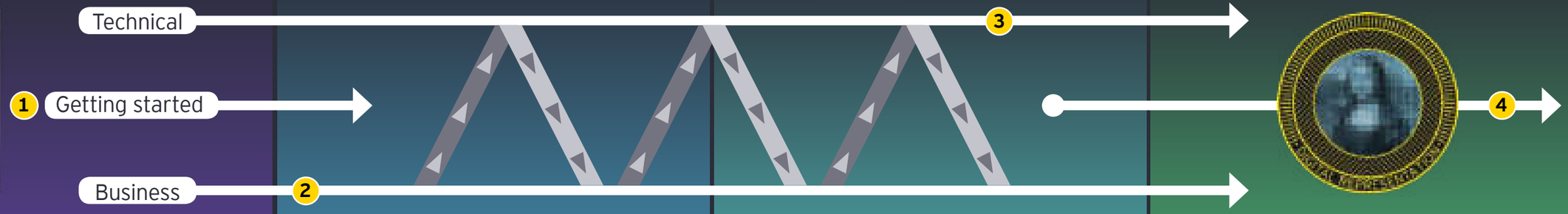
## Transaction Services

Transaction Advisory Services offer advisory services that are designed to help companies make better decisions about how to strategically manage capital and transactions.

**Selected offerings:**

- Valuation and Business Modelling of tokenized assets
- M&A transaction support
- Corporate Strategy and Business Case
- Due diligence and exit readiness






### 1 Entry point: Strategic assessment: "All in one"

**You are considering digitizing your business. So questions like where to start and how your tokenizing journey can be structured arise.**

EY can support you with the definition of a vision, of the strategy and the key business drivers including an evaluation of the implications on the business model process from a technological, legal and tax perspective.

### 2 Entry point: Deep Dive

**You are in the middle of your tokenization journey. While you have gained an overview on how you would like to structure your tokenization project, you are now faced with the necessity to work out the details, i.e., specific business, regulatory and tax questions which may bring your project to a halt.**

EY can assist you with a detailed tax and regulatory analysis, work out implications of the pre-designed business set-up, perform a business review and the necessary fine tuning, e.g., fulfillment of equity requirements

### 3 Entry point: Technology and Security Review

**You are in a mature phase in technical set-up of your tokenization journey. You are not sure if all possible security risks have been properly addressed and mitigated.**

EY has developed a token and smart contract review tool and provides in-depth risk identification and cybersecurity assessments to minimize you exposure to cyber threats.

### 4 Entry point: Post-Tokenization

**After your successful go-live your business is up and running. You are looking for a trusted partner going forward.**

We are a leader in assurance, tax, transaction and advisory services. We leverage our experience, knowledge and services to help build trust and confidence in the capital markets and in economies all over the world. We are ideally equipped for this task – with well trained employees, strong teams, excellent services and outstanding client relations.

“

Considering tokenization as new way of how assets are represented, transferred and stored it is inevitable for corporates to thoroughly asses how this may transform their businesses.

# CLOSE UP & APPENDIX

## Where is tokenization heading to?

# Conclusion

Tokenized assets may flourish as a complement to current "traditional" assets in the financial world allowing smaller companies access to capital market financing.

The tokenization of assets is not the future - it is the present. It is deeply transformative and is offering exciting possibilities for, in particular, financial markets.

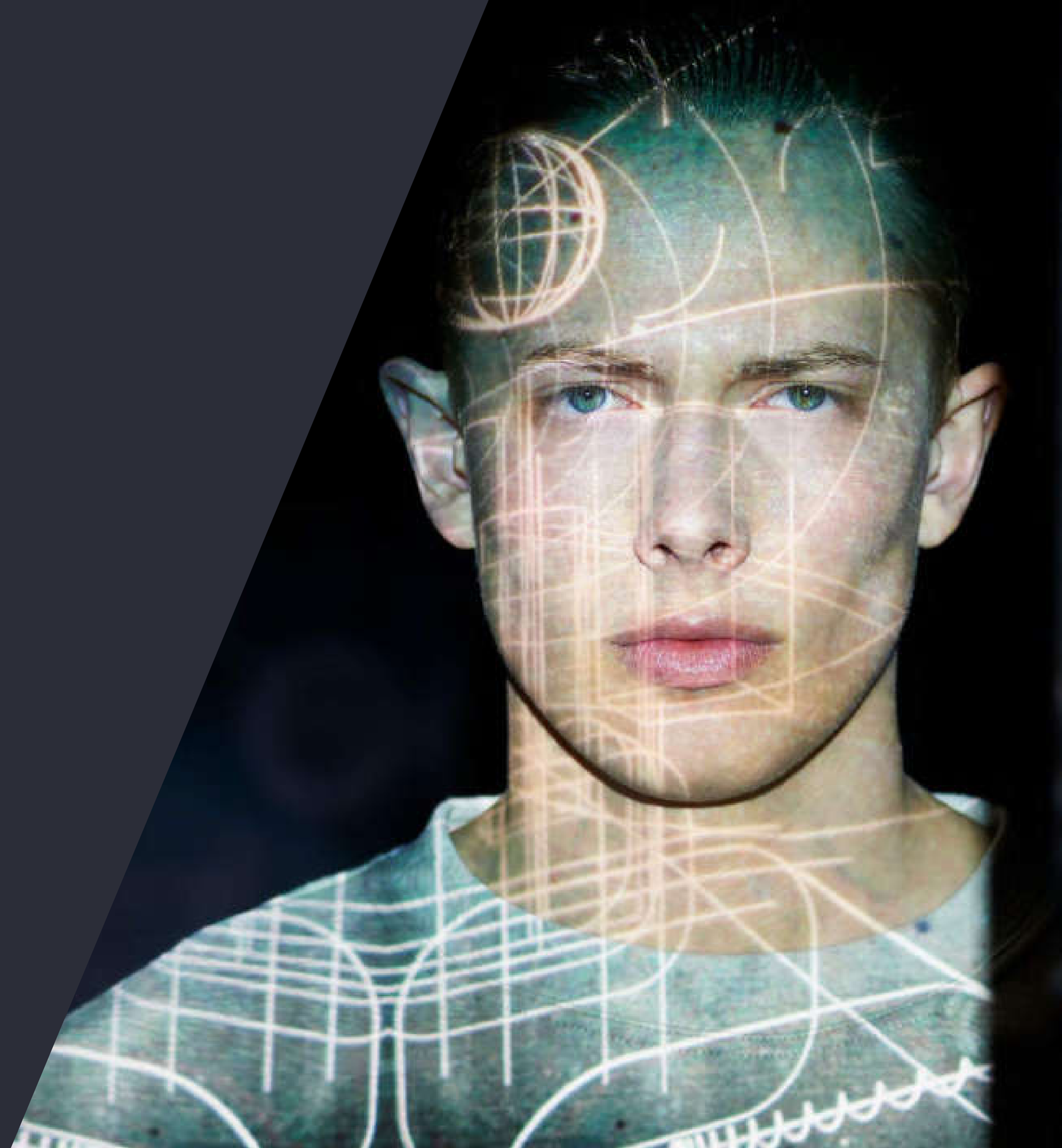
The tokenization of assets offers promising possibilities for capital raising. Novel fundraising vehicles, such as STOs, provide a higher degree of regulation and transparency for investors. Further, STOs are an efficient method to raise capital from a broader investment pool than it has been possible with traditional fundraising methods. It is, however, still in infancy stage and market adoption will still need time. Despite an exponentially increasing interest in tokenized assets, "traditional" financial institutions and national authorities still approach asset tokenization with caution. However, countries like Switzerland, well-known for its innovation-friendly stance, will help to drive and foster the remarkable potential of tokenized assets. Although international frameworks could take a few more years to come to fruition, asset tokenization is likely to play a crucial role in the management and trade of illiquid assets in the long term.

If well designed, StableCoins and CBDCs could be an enabler for better cross-border payments. An international cooperation is required for cross-border transactions of tokenized assets to limit regulatory arbitrage. Central banks are likely to collaborate with each other to carry out proof-of-concept work and pilot projects on cross-border payment and securities settlement arrangements.

Key to the future of tokenization will be creating interoperability with existing systems in order to enable a more widespread adoption. All participants in the value chain should get closer to each other and look for ways to bridge the traditional financial sector with new DLT-related businesses.

# Abbreviations

| Abbreviation | Definition |
|---|---|
| AML | Anti Money Laundering |
| BIS | Bank of International Settlements |
| CBDC | Central Bank Digital Currency |
| CFT | Combatting the Financing of Terrorism |
| CryptoKitties | Virtual collectibles on the Ethereum Blockchain |
| CTF | Counter Terrorism Financing |
| DAO | Decentralized Autonomous Organization |
| DCEP | Digital Currency Electronic Payment |
| DLT | Distributed Ledger Technology |
| ECB | European Central Bank |
| ERC | Ethereum Request for Comments |
| EU | European Union |
| FATF | Financial Action Task Force |
| Fiat | Governmental issued legal tender |
| FINMA | Swiss Financial Market Authority |
| FinSA | Swiss Financial Services Act |
| FPS | Fast Payment System |
| FSB | Financial Stability Board |
| GDPR | General Data Protection Regulation |
| ICO | Initial Coin Offering |
| IDexO | Initial Decentralized Exchange Offering |
| IDO | Initial Digital Offering |
| IEX | Initial Exchange Offering |
| IMF | International Monetary Fund |
| IP | Intellectual Property |
| IPO | Initial Public Offering |
| KYC | Know Your Customer |
| NFT | Non-fungible Token |
| OECD | Organization for Economic Co-operation and Development |
| SDX | Swiss Digital Exchange |
| SFTA | Swiss Federal Tax Administration |
| SIX | Swiss Stock Exchange |
| SNB | Swiss national Bank |
| SOC | System and Organization Controls |
| STO | Security Token Offering |
| USC | Utility Settlement Coin |
| VAT | Value-Added Tax |
| VC | Venture Capital |



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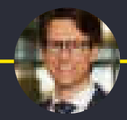

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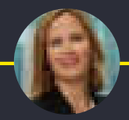

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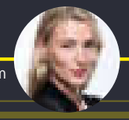

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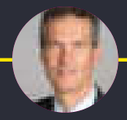

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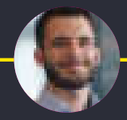

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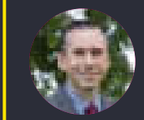

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ED None



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