tokeny SOLUTIONS

TOKENIZED SECURITIES

THE ULTIMATE HANDBOOK ON HOW TO ISSUE COMPLIANT SECURITIES ON THE BLOCKCHAIN

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ABOUT TOKENY

The Luxembourg based fintech company is the market-leader in delivering an institutional grade, secure end-to-end platform, allowing for the issuance and servicing management of tokenized securities.

Tokeny utilizes their proprietary T-REX (Token for Regulated EXchanges) infrastructure to ensure compliance from the issuance of tokenized securities to their lifecycle management. Tokeny provides the technical solutions to onboard investors, manage corporate actions such as dividends, voting, and corporate announcements. Their solutions ensure continuity with regards to KYC and AML compliance checks, ensuring all participants are eligible for the investment.

Tokeny's solution leverages blockchain technology and couples it with decades of experience from the traditional securities world. Tokeny employs this background to make the participation of any contributor in a security token offering transparent, accessible, and completely secure.

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INTRODUCTION

The purpose of this Ebook is to guide issuers through the main steps involved in the process of launching a Security Token Offering (STO). Before we get into the operational process, it would be useful to introduce the topic area and define tokenization.

2017 saw a huge rise in Initial Coin Offerings (ICOs). This has, in turn, created a new asset class that has challenged the traditional makeup of financial markets. ICOs presented an important innovation, providing new pathways and more efficient flows for capital from a significantly wider group of investors.[1] However, as the technology of blockchain developed rapidly, the regulatory framework has not been able to keep pace. We have seen plenty of ICOs associated with scandal and fraud, which has naturally caused uncertainty from issuers and shareholders.

With ICOs in decline, 2018 has been called by many as the year of the shift to STOs. Security tokens are regulated and in most cases backed by underlying assets. They can produce a regular yield for their holders, while providing more stability and guarantees for the investors.

2019 onwards will be structuring years for the industry. Efficient technologies will be released, traditional security service providers will enter in the market, investors will onboard, licensed exchanges will open and regulators will move forward. The first complete use cases will start delivering value to their investors and step-by-step, tokenized assets will become more attractive than others.

UNDERSTAND TOKENIZED SECURITIES

What is a Security?

To start with the basics, a security is a fungible and negotiable financial instrument that holds some type of monetary value. It can represent ownership in a company's stock, a creditor relationship with an entity through a bond, or rights to ownership as represented by an option.[2] To keep it simple, a security can be broken down into three overarching categories; equities, funds and debts.

Equity is an investment in stock issued by another company. The stock can be either private or public, and represents ownership of an entity. The entity could either be a corporation or a trust. Equity securities entitle the holder to some control of the entity on a pro-rata basis, via voting rights.

Debt represents money that is borrowed and has to be repaid. The issuer of the bond (or debt) owes the holders debt and is therefore generally obliged to pay them interest, and to pay the principal on the maturity date as stipulated in the offering documentation of the security. Typically, interest is paid as fixed intervals (monthly, quarterly, annually, etc).

An investment fund is a supply of capital belonging to numerous investors used to collectively purchase securities. Each investor retains ownership and control of their own shares. The same principle can be tokenized, and the tokens can represent shares in the fund.

1. Nagaraj, K. (2019) Institutionalization of Cryptoassets. KPMG.
2. Gallant, C. (2017) What is Securitization? Investopedia.

What is Tokenization?

Security tokenization is the process of materializing the ownership in a security through the issuance of a "token" registered on a distributed ledger technology (DLT) infrastructure. Therefore, a tokenized security can be equity, a bond, or an investment fund. It could also represent a securitized fraction of a real asset (e.g. a piece of art).

The DLT infrastructure used to issue the tokens can, depending on the legislation and the choice of the issuer, either be the "primary register" for the security or a representation in the form of tokens primarily issued on a different infrastructure outside of the blockchain.

For the purpose of this Ebook, we will refer to these tokens as 'security tokens' and we will detail how they work in the following section. Most players in this emerging industry refrain from calling these 'digital securities', as the term is too vague, and in fact, securities have been traded digitally for years.

Our world is full of these securities, but many are currently difficult to physically transfer or subdivide, so buyers and sellers instead trade paper or unsecured digital files that represent some or all of the asset. These systems are cumbersome, difficult to transfer and can be hard to track. The underlying assets can also lack transferability: For example, if the underlying asset is a piece of property, transferring the ownership of that asset requires for it to be sold. Through tokenization, the rights of these assets can be shared almost instantaneously thanks to peer-to-peer trading. This is one advancement of many when applying blockchain technology in financial markets, other use cases are explained later in this Ebook.

What Exactly is a Security Token?

2018 has been the inaugural year of Security Token Offerings (STOs) and many think that by 2030 tokenized securities will be the primary method of issuance.

To understand security tokens, it's fundamental to understand securities. With securities, it's mandatory to respect the relevant laws and regulation for every jurisdiction the assets are issued in, and in every jurisdiction the securities will be distributed. As you might expect, the exact same process is needed when issuing security tokens on a blockchain.

Utility Tokens vs Security Tokens

To precisely define security tokens, let's define something they are not, utility tokens. An ICO is a way to raise funds for a distributed network. A company, or a foundation, issues tokens that can be used by contributors to redeem a service the entity is offering. For example, if the issuer of the token is a company launching a decentralized car sharing platform, each kilometer of travel could be represented with a token. The tokens are a way to exchange value between participants of the network by representing a unit of service. As such, they are called utility tokens.

However, if **the main purpose of the token is to generate an increase of monetary value for its holder, it is an investment and therefore will be considered a security** in most jurisdictions.

Obviously, if the issuer needs to collect funds in order to finance a company in the form of debt or equity, or if an asset manager wants to issue an investment fund, the token representing these financial instruments won't be utility tokens, they are representations of securities and are therefore called security tokens. The key difference here is that utility tokens represent a right to use a predefined good or service. **Security tokens represent a right to future financial flows resulting from the main activity of the issuer** of the token. Here are some other key differences between the two:

UTILITY TOKENS	VS	SECURITY TOKENS
"ICO"	**Token sale usual denomination**	"STO"
Service or goods. Access to a decentralized network.	**Tokenization of**	Asset. Fund. Equity. Debt. Financial products.
Only a few countries have defined the status of utility tokens, mostly in Europe and Singapore. USA mainly considers utility tokens as securities.	**Applicable regulation**	Existing securities laws should be considered as applicable in most countries.
10-15B USD	**Raised so far**	<1B USD
Internally or via a platform	**Issuance**	Compliance platforms and blockchain standards appear mandatory to respect the strict regulations.
Any blockchain allowing the creation of a token.	**Blockchains**	Any blockchain allowing advanced smart contracts creation.
ERC20	**Token standard**	ERC20 permissioned (ERC1400 for example). ERC725/735 to manage identities.

Compliance aware tokens

As we are talking about securities, we need to ensure the transfer of these security tokens are performed in a compliant manner. Typically, when a security token transfer occurs on a blockchain, the source address calls the smart contract transfer function. In its most basic form, this function has a destination address and an amount to transfer. However, for a STO to be issued in a legal manner, transfer

instructions need to be programmed into the token to ensure compliance in every jurisdiction the offering is issued in:

Permissioned tokens

Permissioned tokens work with a validator or regulation service which will validate whether or not a trade should have the permission to be executed. In permissioned tokens the securities rules are coded into the token and the validator which can be centralized or decentralized. There are several open source smart contract templates (so called "protocols") for permissioned tokens, the main ones are overwriting the "transferfrom" functions of the ERC20 token standard, and ask permission from a validator/regulator service, which may or may not be included in the protocol.

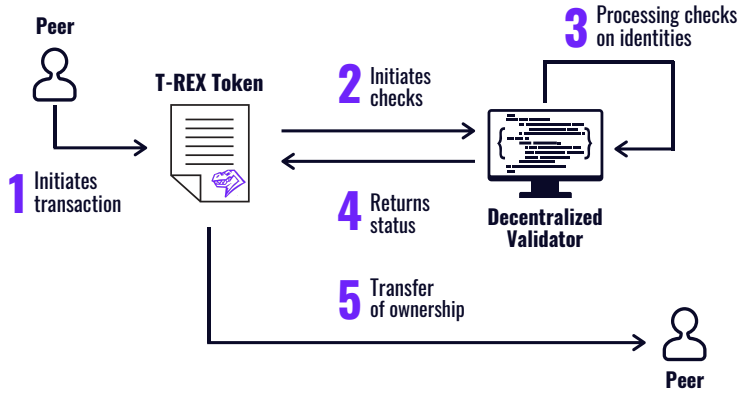
Identities management

To enforce the compliant trading of tokens it is of course important to execute the transfer between one wallet and another. However, **as issuing securities implies respect to strict offering and secondary market rules, and as AML and KYC regulations apply, it is also fundamental to allow for the creation and management of identities** for every stakeholder. Using protocols like the ERC-725/735 allows for a unique identity for a person or group that can be published and managed via the blockchain and allow for the identity to hold keys and sign actions. It provides an easier way to operate the lifecycle management of a token by identifying more easily who can and cannot make transfers and allow for multiple people within an organization to sign off on transactions if they have the necessary identity keys.

T-REX (Token for Regulated EXchanges)

To ensure compliance from the issuance of security tokens to their lifecycle management (securities servicing and transfers), issuers can use the open source T-REX (Token for Regulated EXchanges) infrastructure. This set of on-chain solutions is used to create compliant-by-design security tokens by respecting market standards and well tested smart contract templates. The T-REX ensures continuity with regards to KYC and AML compliance checks, ensuring all participants are eligible for the investment. It ensures interoperability with the main liquidity providers and allows issuers to allocate tokens to their investors and shareholders. The T-REX can easily be completed by other smart contracts and dApps to manage taxes, and to conduct post-issuance corporate actions such as dividend payments, voting and announcements.

Only the T-REX suite of blockchain tools assembles on-chain identities and permissioned tokens to guarantee transfers of ownership in a built-in validator service:



What are the benefits of Tokenization?

Why tokenization? Why replace an infrastructure that has existed for decades? There are a number of benefits when comparing security tokens and finance methods that operate today:

Automation

A number of service functions that are currently carried out by middlemen can be automated through the blockchain. Currently, these various levels of intermediation often complicate communication between the issuer of a security and his investors. Each intermediary maintains its own ledger of data, and while central intermediaries maintain aggregated records, the parties' ledgers can differ quite substantially.[3] Every level of holding needs to perform position reconciliations with the previous ones which represents an important and costly operational process (not to mention the cost of reconciliation breaks needing to be fixed). Through a STO, **the processes can be simplified and automated via smart contracts, and also by sharing the same information**. Issuers offer shares directly to investors, making the information accurate, transparent and immutable.

Shared information and Transparency

Security Tokens **eliminate the asymmetry of information** that is present during the actual transfer of ownership of a specific security. Using the blockchain as a central source of truth, is shared by every player on the value chain. The tokenization of securities on a blockchain will also make governance and ownership more transparent and reliable than a traditional private security offering.

Cost-effective

In the traditional securities markets, middlemen charge significant fees for their services. These fees charged by those intermediaries pile-up to be paid by the end-investor, adding another barrier to entry. By using blockchain technology and smart contracts, **issuers can cut out many of the typical, low-value added, expensive, intermediaries that are needed for offerings**. This in turn will re-create the links, allowing the issuers and their investors to have more direct relationship with one another.

Immutability

Financial institutions currently rely on private databases. In these internal systems there are different levels of access for the users that operate the database. In the lowest form, there will be users with read-only access, who will not be able to change any data. Usually there will be at least one user with a higher level of access, such as a systems administrator, and they may be able to make amendments to existing data. Investors and regulators need to trust organisations because there is no control mechanism making the data immutable in the first place. This is where blockchains can add substantial value. **Once an investor buys tokens on a blockchain, nobody can erase the history of his ownership**. Once data has been written to a blockchain, i.e. after a transaction has occurred, nobody, not even a system administrator, can change it. This is highly beneficial when it comes to auditing, as you can prove your data hasn't been altered, reducing time and costs.

3. Williams, R. (2017), Moody's: For financial institutions, blockchain has great potential in the post-trade arena.

Inclusivity

Global reach and lower fees of the blockchain infrastructure allows for a new breed of investor and the potential for a worldwide investor base. **The ability to divide the underlying assets into smaller units, making it more affordable for some investors and easier to transfer**, allows for fractional ownership. Investing in an apartment, for example, could cost too much and might make it difficult to sell later, but owning a fractional share in the whole building could be cheaper to buy and easier to sell.

Liquidity

Privately issued securities are often difficult to trade and therefore have been highly illiquid. The use of **blockchain allows value to circulate more easily by bringing online trust**, as it prevents the "double spending" problem. The ability to fractionalize tangible assets through tokenization can also bring liquidity into these markets that have had little to no access to it. Traditionally, private securities could only be traded on secondary markets after using an extensive amount of middlemen and following strict, difficult to navigate regulations. By streamlining and automating these processes and **by using a common distributed infrastructure, companies can remove the burdensome hurdles that previously restricted the liquidity of their securities**. Secondary markets will also offer increased liquidity through a constant 24/7/365 trading market.

Speed

Fast digital transfer of ownership, T+0 settlement, 24/7/365. This results in increased liquidity and the opportunity for investors to transfer or sell their tokens after they've been issued. This is fairly commonplace for some traditional securities, in particular when they are largely distributed in the public. However, it's far less common in other types of securities or financial instruments such as loans, real estate or private equity funds, which are generally far less liquid. Tokenizing those instruments through an STO can facilitate the transferral of these types of securities which aren't always technically transferrable in their traditional form.

Challenges for Traditional Asset Tokenization

Governance

Blockchain technology offers the possibility of transferring part of the regulatory and compliance processes on-chain in the form of smart contracts. Transparency, accuracy and immutability are all needed when it comes to governance, which are all characteristics of blockchain. However, the technology will raise technical challenges, regulatory questions, legal grey areas, and changes of processes that could be difficult to set up for issuers and their agents.

Regulatory

Mass adoption of traditional asset tokenization is going to take years to fully develop. Technology evolves quickly, but regulation does not. Traditional asset tokenization represents one of the greatest opportunities, and greatest challenges, that global regulatory agencies will face over the next decade. It could slow down innovation and create impassable walls for some issuers.

Status Quo

Tokenization of traditional assets will cause disruption to the status quo. Some systems that are in place today may not work the same way in the blockchain world. The current systems will have to evolve. The challenge is that there are stakeholders that benefit from the status quo. These parties have incentives to resist change, and they will do what they can to slow down adoption.

STEP ONE
DEFINE WHAT YOU WANT TO TOKENIZE

What can be tokenized?

As mentioned previously, potentially any asset class can be tokenized. There's the potential to go further than this as tokenized shares can bring together a combination of these - potentially creating new security structures. For now, we will explain how existing assets can be tokenized and we have grouped the possibilities into four mains classes:

Assets

An asset is anything of value that can be converted into cash. Individuals, companies, and governments own assets. They can be divided into two categories, personal assets and business assets. Personal assets are anything from cash, cash equivalents, savings accounts, to property or even investments. Business assets, as you would expect, are any assets that are present on the balance sheet. These assets can be owned fractionally through the process of tokenization.

Equity

Shares, i.e. equity, of a business can be tokenized. For example, to use the analogy of every day share ownership, the shares of a listed company can be bought during its initial public offering (IPO), or on the stock exchange. With equity tokens, the assets are represented by a digital form and stored on a blockchain wallet.

Funds

An investment fund is a supply of capital belonging to numerous investors used to collectively purchase securities. Each investor retains ownership of their own shares. The same principle can be tokenized, and the tokens can represent a share in the fund.

Debts

Debts are probably the most common form of securities. They are usually standardized financial products with clear interest rates so investors know what type of revenues they should get from their investment. The liquidity for debt products is generally higher than for equity.

Services

The goods or services of a business can be offered as a way to raise investment for that business and/or to launch a decentralized network. The tokens issued in these cases are called utility tokens and can only be used to access the network, or purchase the goods or services offered by the issuer of the token.

Token economics

Revenue management associated to the tokens:

Value of the tokens

The tokens issued represent the value of the issuer's assets on the blockchain. Therefore, simple mathematics allows you to calculate the value of each token during the issuance:

First, the issuer needs to determine the value of the underlying asset during the offering. After this the amount of the asset that will be tokenized will need to be defined (it could be the totality for a new investment fund, or 15-25% for an equity fund raising for example). Finally, they will need to determine the number of tokens issued.

The token economics can be calculated simply:

value of 1 token = (total value of the asset * % tokenized) /number of issued tokens

Or

number of issued tokens = (total value of the asset * % tokenized) / value of 1 token

For example, if the issuer plans to tokenize the totality of a 100 million euros real estate fund, and divide it into 100 million shares, each share is valued at 1 euro.

To convince investors that the underlying asset is valued properly and that the investment is a good opportunity, the issuer will need to detail the anticipated revenues and rights associated to the tokens.

Revenues associated to the tokens

Investors will only invest if they think the underlying asset will gain value and/or generate revenue for them. The issuer needs to explain in his documentation how the benefits will be distributed:

- **Type of distribution**: *In which form will the revenue generated by the underlying assets be distributed?*

  Issuers can choose to do buybacks, meaning buying their own shares to reduce the circulating supply available on the market. Buybacks are normally purchased at the market value per share plus a premium. Also, reducing the number of shares available is supposed to increase the demand and therefore the price of the circulating tokens. Dividends are also a common option to distribute revenues. Investors will receive dividend payments for owning shares. Dividends correspond to a cash distribution, in fiat, in stablecoin, or in crypto-currencies. For example, a company could decide to distribute 10% of its profits annually to token holders.

- **Frequency of distributions:**

  Once the form of revenue distribution is defined, the frequency of distributions is important as well. Standard companies pay dividends annually but some financial products share profits more regularly, such as on a quarterly or monthly basis. Thanks to the blockchain, cash distribution can be automated, at least partially. It represents an opportunity for issuers to offer additional incentives for investors by planning more frequent cash distributions.

Whatever the form and frequency of distributions, the sharable revenues will be impacted by management costs from intermediaries.

- **Operational team and managers fees:**

  Founders are more than just shareholders and are usually active in the company as well. Therefore they will get salary and bonuses to reward their work. It will obviously impact the total amount to share with other investors. For funds, the managers will receive performance fees.

- **Agents fees:**

  Agents that are mandatory in current financial transactions, including custodians and management companies in some cases, will need to be paid as well.

As there are less intermediaries involved in tokenized securities than in typical security issuances, there are less middlemen taking fees. Through the use of programmable smart contracts, there are automation opportunities, thus reducing cost and adding, transparency, accuracy and immutability. Having said that, these fees are not completely removed, as there is still a need for some middlemen, such as distributors for example.

Rights associated to the tokens

If tokens represent the shares, any **rights associated to the shares are associated to the tokens**. Therefore, companies regulations and/or financial regulations apply. Also, standard shareholders agreements can provide additional rights to token holders such as information rights, drag along, tag along, etc. All of these rights should be detailed in the legal documentation of the offering.

Some of them can be expressed directly on the blockchain during the lifecycle of the security, via votings. For example, if the issuer is using a proper identification system for investors, voting can be performed on-chain. It is now legally recognized by some regulations, as in France, for example. Token holders, from all around the world, can now easily participate in general meetings.

Depending on the type of financial instrument issued, investors will expect different type of rights. However for debts, they will be less demanding than for equity.

STEP TWO
ENSURE COMPLIANCE IN YOUR OPERATIONS

One of the key differences between utility tokens and security tokens is that there are fairly clear legal guidelines on how security tokens should be regulated. When issuing a security token you will face many regulatory and compliance issues that will vary depending on where your issuing company is located and where your potential investors are located.

Issuer Jurisdiction

One of the important steps in issuing a security token is choosing the jurisdiction where the issuance will take place. Many factors go into choosing the jurisdiction including how the country handles compliance and regulations. Of course, you will want to use a jurisdiction with fair and not unduly or burdensome regulations but also one that has very clear and well established laws. Having clear and well established laws can make it easier to find good legal counsel that can assist in your offering and can also offer more assurances for the potential investors.

Because security tokens are regulated financial products, most countries will have established regulatory bodies and rules to govern the transactions. Some of the main countries that will be used for STOs and their governing bodies are listed below.

Cayman Islands

Due to a long history of companies setting up funds in the Cayman Islands there are many well established rules and processes for conducting private offerings from the Cayman Islands and many law firms that specialize in these types of offerings.

Liechtenstein

The Financial Market Authority (MFA) is developing new laws in the hope of attracting more blockchain business to Liechtenstein. They are discussing exemptions for STOs that could be among the mostly friendly to issuers in the world.

Luxembourg

The Commission de Surveillance du Secteur Financier (CSSF) is the primary financial regulator body in Luxembourg and they provide fairly clear regulations that have attracted many hedge funds to the region. In terms of number of hedge funds accounted for, Luxembourg is second only to the USA.

Malta

The Malta Financial Services Authority (MFSA) has been proactive in trying to provide clear and less burdensome rules for token offerings. The MFSA is constructing new rules and exemptions to attract companies in the blockchain space and could provide an ideal jurisdiction for issuance, although at this time the new rules primarily involve utility token offerings.

Singapore

The Monetary Authority of Singapore (MAS) is the main regulatory body. The Securities and Futures Act (SFA) is the regulation that provides clear rules for conducting offerings and also provides some exemptions to standard registration requirements that can be advantageous to a company targeting high wealth investors.

Switzerland

The Swiss Financial Market Supervisory Authority (FINMA) has shown themselves and the region to be crypto-friendly. They have provided clear exemptions to standard security registration requirements including Qualified Investor exemptions and self-issuance exemptions.

USA

The Securities and Exchange Commission (SEC) is one of the most well known financial regulatory bodies in the world. The SEC provides clear and well established offering rules and often used exemptions for conducting offerings without having to get approval from the Commission. The Commodity Futures Trading Commission (CFTC) is also a regulatory body to be aware of in the United States.

Investor Jurisdiction

The jurisdiction in which your issuance takes place is important but it is also critical to be aware of, and comply with, the laws in the jurisdictions in which your investors are located.

There are usually two ways in which a company can offer a compliant security token. The first is to be a fully approved and registered offering, such as an Initial Public Offering (IPO) in the US or having a registered and approved Prospectus in the EU. The Prospectus Directive lays out the general rules for getting a Prospectus approved in the EU. The biggest advantage of doing a security offering in this manner is the ability to sell the tokens to all types of investors, ie retail investors.

Having your Prospectus published and approved can give you access to the entire European market but it can be a timely and costly process. Singapore and other countries also have similar laws regarding registered Prospectus offerings, though each countries' requirements for the Prospectus are different.

Due to the cost and time for registration many companies choose to fall under an exemption for their security offering. The most commonly relied on exemption for publishing your Prospectus in the EU is to make a private offering to Experienced Investors. The Experienced Investor is synonymous with the Accredited Investor in the United States and can include persons who work in the financial field and would have the proper knowledge to make sound investment decisions and also corporations, trusts and persons who meet certain asset thresholds.

Other exemptions for security offerings include requiring a high minimum investment amount per investor, such as €100K, and also some crowdfunding exemptions among others. When using an exemption for a security offering it's important to have attorneys who know the regulations well and can properly structure

your offering so it does not fall outside the bounds of the exemptions you're using.

We are also seeing some countries start to develop new standards for security offerings for smaller companies and start-ups that may ease some of the previous burdens of selling a security to retail investors. The EU is implementing new rules in the near future that would implement a lower standard of prospectus registration for companies that are less than three years old.

Examples of Exemptions in the US

Reg A+

Commonly referred to as a mini-IPO, it offers the ability for an issuer to offer their security token to non-accredited investors through general solicitation up to $50,000,000. In order to use Reg A+ the issuer must qualify the security with the SEC which can be a slow and expensive process similar to an IPO.

Reg CF

Allows an Issuer to sell up to $1.07M of their offering in a 12 month period to non-accredited investors. There are limitations on how much each investor can invest. Reg CF is known as the Crowd Funding exemption.

Reg D

Under the exemption 506(c) a Security Token Offering can be generally advertised, sold to Accredited Investors only, and there is no limitation on the amount that can be raised. So far, this is the most common used SEC exemption for security tokens.

Reg S

Under Reg S, an issuer can sell their security token to non-US investors in offshore transactions without having to register the sale of securities with the SEC.

So far, Accredited Investors/Professional Investors are the main target market for Security Token Offerings.
Some examples of professional investor definitions by region:

In United States:

Accredited Investor

- An individual whose income exceeds $200,000 in each of the two most recent years (or $300,000 in joint income with a person's spouse) and who reasonably expects to reach the same income level in the current year;
- An individual whose net worth exceeds $1 million, excluding value of primary residence;
- Certain entities with over $5 million in assets; or

Certain regulated entities such as banks, savings and loan associations, registered broker dealers, insurance companies, registered investment companies, business development companies, licensed Small Business Investment Companies which are not subject to the asset test.

In Singapore:

Accredited Investors

- An individual whose net personal assets exceed S$2 million (~$1.5M USD);
- An individual whose income in the preceding 12 months exceeds S$300,000 (~$225,000 USD); or
- Corporations with assets exceeding S$10 million (~$7.5M USD).

In European Union:

Professional investor and Experienced Investor

- Per Se Professional Client are generally financial institutions;
- Elective Professional Client
  - The "Qualitative Test": The firm undertakes an adequate assessment of the expertise, experience and knowledge of the client that gives reasonable assurance that the client is capable of making his own investment decisions;
  - The "Quantitative Test": Client meets at least two of the following:
    - has carried out transactions of significant size on the relevant market at an average frequency of 10 per quarter over the previous four quarters;
    - has financial portfolio exceeding EUR 500,000;
    - works or has worked in the financial sector for at least one year.

Israel

Classified Investor

- Institutional investors (pension funds, insurance companies, mutual funds, banks, portfolio managers, etc.);
- Large companies with equity exceeding ILS 50 million (~$14M USD); or
- Sophisticated individual investors that:
  - Hold liquid assets (cash, deposits, financial assets, and securities) of at least ILS 8 million (~$2.2M USD); or
  - Have received personal income of at least ILS 1.2 million (~$335,000 USD) in each of the two most recent years (or ILS 1.8 million in joint family income (~$504,000 USD)); or
  - Hold liquid assets of at least ILS 5 million (~$1.4M USD) and receive personal annual income of at least ILS 600,000 (~$168,000 USD) (or ILS 900,000 in joint family income (~$252,000 USD))

In Australia:

Sophisticated Investor

- A person that has net assets of at least A$2.5 million (~$1.8M USD); or
- A person that has a gross income of A$250,000 (~$189,400) for each of the last two financial years.

- A person that has net assets of at least A$2.5 million (~$1.8M USD); or
- A person that has a gross income of A$250,000 (~$189,400) for each of the last two financial years.

Professional Investor

- A person has or controls gross assets of A$10 million (~$7.5M USD).

In Brazil:

Professional Investor

- Certain types of institutions such as financial institutions, insurance companies, investment funds, etc.; or
- Investors holding financial investments exceeding R$10 million (~$2.7M USD) and attest in writing their qualified investor condition.

Qualified Investor

- Investors holding financial investments exceeding R$1 million (~$270,000) and attesting in writing their qualified investor condition.

In Canada:

Accredited Investor

- An individual who, alone or together with a spouse, owns financial assets worth more than $1 million before taxes but net of related liabilities; or
- An individual who, alone or together with a spouse, has net assets of at least $5,000,000;
- An individual whose net income before taxes exceeded $200,000 (or $300,000 in joint income with a spouse) in both of the last two years and who expects to maintain at least the same level of income this year;
- An individual who currently is, or once was, a registered adviser or dealer, other than a limited market dealer;
- Financial institutions, governments and governmental agencies, insurance companies, pension funds, registered charities, certain mutual funds, pooled funds, and managed accounts; or
- Companies with net assets of at least $5 million.

In Korea:

Professional Investor

- Balance of financial investment instruments of at least KRW 500 million (~$460,000 USD); or
- Annual income of at least KRW 100 million (~$92,000 USD).

KYC and AML Rules

When conducting a STO you will need to follow proper Know Your Customer (KYC) and Anti-Money Laundering (AML) procedures to ensure your offering is compliant with international regulations. The exact requirements that will be needed will likely come at the recommendation of your bank and attorneys to ensure that you are following the regulations of the jurisdictions you are operating in.

Some of the KYC information you will need to collect for individual investors includes: the full name, address, contact information; documents such as a government-issued ID, and proof of residence. If you are verifying accreditation you may also need a third-party accreditation letter or documents showing proof of wealth and assets of the investor.

Some of the KYC information you will need to collect for institutional investors includes;
the full legal name of the entity, the entities registration number, primary contact information and more; documents showing the UBOs (Ultimate Beneficial Owners), list of signatory, board members, proof the entity can enter into an agreement; entity accreditations can include documentation proving assets or regulatory licenses as well.

When conducting AML procedures you may go through international watch-lists for companies or persons who are believed to be risky. It is also possible to get risk scores for Ethereum addresses to help curb money laundering risks through the Ethereum blockchain. The key issue in the AML process is to be able to show the provenance of funds by using proper bank controls for fiat currencies and dedicated solutions for receiving crypto-payments and even having investors submit declarations of the source of funds in some instances.

The security token issuer carries the responsibility to comply with all KYC and AML procedures. Companies can choose to process the KYC and AML checks internally or via an external agent who is well versed and qualified to run all the proper procedures. By using KYC and AML technical solutions it is possible to automate part of the process and plug in all of the KYC requirements into your offering funnel.

Cash Management

When it comes to managing the various currencies involved in your Security Token Offering there are many factors to consider such as:

Accepted Currencies

It's important to have your token sale structured to be able to accept the most common currencies. Currently, the most accepted currencies during STOs are USD/EUR, ETH and BTC. Fiat currencies are rapidly becoming the most important as investors are afraid of the high volatility of cryptocurrencies. **A Security Token Offering can be done without accepting any cryptocurrency**, in order to facilitate the compliance for example.

Conversion Rates

If the company that is issuing the security token needs to invest in real world assets they will need to convert part or the totality of the crypto-currencies received from investors into fiat. If the token currency base is in fiat, you will need to apply a fair and clear conversion rate and notify your investors on how the conversion rate is calculated and used. For conversion between fiat currencies, the banks usually integrate the service and can describe their exchange rate rules.

Currency Base of Your Token

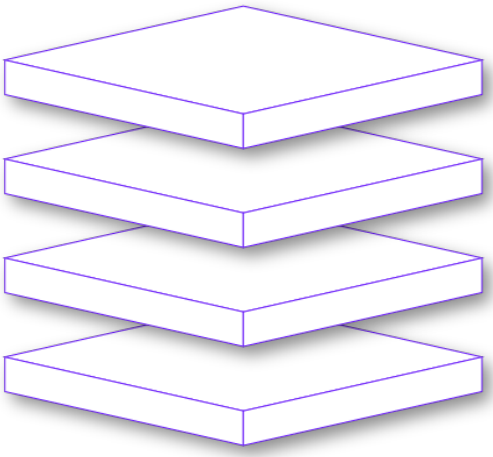
The price of your token should be based in a single currency. This helps to reduce volatility and ensure fairness between investors, a fiat currency such as USD or EUR is generally used.

Payment Methods

For a Security Token Offering a company may want to have the ability to accept multiple forms of payment. For fiat payments, the issuer should be able to accept bank transfers in several currencies. Specific payment providers can be used as well (bank card, Paypal, etc.) but it will cause additional fees for the issuer. For payments in crypto, smart contracts or dedicated wallet systems can be set up.

STEP THREE
JOIN THE RIGHT ECOSYSTEM

The Security Token Stack



LIQUIDITY PROVIDERS

Centralised and decentralised exchanges provide interfaces and use standards to make it easier to trade security tokens.

TOKEN STANDARDS

So far the most adopted token standards are ERC20, ERC 725/735, ERC884 and ERC1400. All of these standards work with Tokeny's T-REX infrastructure.

VALIDATOR SYSTEM

The issuer must enforce KYC/AML and other regulatory rules. These restrictions can all be managed and validated with a compliance platform such as Tokeny.

BLOCKCHAIN

Ethereum is currently the blockchain with the most complete ecosystem but there are other blockchain options such as Stellar and EOS.

Actors in the Ecosystem

The security token ecosystem is deep with many different participants that may be able to help the issuer through the token issuance process. Some companies may need the help of many different actors in the ecosystem while others may be able to handle most aspects in house. Regardless of what the company may need the tools and players are certainly out there to produce a successful Security Token Offering.

Advisors

Legal Advisors

As noted before, the legality and compliance of a security token are of the utmost importance. Companies will want to work with law firms that are experienced in the issuance country of their choosing. It will also be important to have legal advisors for the countries of distribution or an international operating law firm.

Distributors and Marketing Agencies

The marketing practices in the STO industry can be quite specialized as there are unique advertising regulations to follow and also unique customers to target. Marketing agencies experienced in this industry can play an important part in the project. Also, specialized and licensed distributors can reach investors on the issuer's behalf, or even take positions for them. Broker-dealers, investment banks, stock brokers, market makers and other financial advisors will help issuers to distribute their offering. They usually take a commission fee based on the amount of investment they bring.

Project Coordinator

These are mostly presented as advisory firms and they can help to manage the project and to articulate the different players according to the necessary timeline.

Technical Advisors

It is important to have technical advisors who understand blockchain technologies. The use of blockchain is an added value for the issuer if it is used properly. Otherwise, it can remain an extra source of costs. The issuer should remain realistic with what investors want and the stage of development of this new industry. For example, do actual investors want dividends to be paid automatically via smart contracts, meaning in Ethereum or in stablecoins?

Blockchains

The blockchain is truly the backbone of the security token ecosystem and specifically the Security Token Offering. Choosing the correct blockchain or developing a blockchain will be a big decision for any token offering.

Ethereum has been the most popular blockchain used so far for token offerings. Due to its prevalent use, it has the advantage of a large ecosystem of users and developers. Other advantages of using Ethereum

include wallets that are fairly easy to use, standardized protocols (ERC20, ERC725, ERC735, etc) and also the flexibility of the smart contracts. There are also some disadvantages, the most notable is that the network can sometimes cause slow speeds for transactions.

Outside of Ethereum there are other blockchains being explored. These blockchains include: Stellar which can provide for very fast and cheap transactions but it has more limited smart contract flexibility; EOS has interest due to its smart contract structure and large funding, it was released in July of 2018 and still has a very limited ecosystem; NEO is a blockchain built in a similar fashion as Ethereum but it is more centralized, running on small number of servers.

The issuer should choose the blockchain bringing the most established ecosystem to get interoperability for its tokens. If the issuer is using a centralised blockchain, or a distributed ledger technology that other players don't know or are not used to working with, it will create a lot of friction in the subscription process and during the lifecycle of the tokens. Investors won't be able to participate easily, exchanges will need to do specific technical integration, etc.

Exchanges

A pervasive theme in the security token market is the new liquidity that can stream into various asset classes through security tokens. There are three standard types of exchanges that do or will allow for the trading of security tokens:

Centralised Exchanges: operated by a centralized company that controls trading.
Decentralised Exchanges: less centralized company control, trades happen through a blockchain via the peer-to-peer matching of trades.
Direct P2P trading: individual traders, broker dealers, or institutions directly interact with one another on trades.

Licensed and operating security token exchanges are still in their infancy and are slowly being rolled out across the globe. Although it is an early market there are a number of companies establishing exchanges in various jurisdictions. **Examples of security token exchanges include:**

Europe	Blocktrade.com, ARCHAX, GBX Gibraltar Blockchain Exchange, NEX, Boerse Stuttgart, The Elephant, SIX Swiss Exchange, Malta Stock Exchange plc Prospects	
United States	bithumb, tZERO, OVRBex, OpenFinance Network, EMPLUM	
Asia	Cointronix	*Note: Multiple crypto-exchanges awaiting new MAS regulations to be enacted.*

There are still other liquidity providers in the security token market that are seen in other traditional markets such as broker dealers, investment banks, family offices, etc. As the security token market grows the ways to access liquidity will continue to grow with it.

Investors

The types of investors that will come to the early security token market will mostly be those that are interested in the alternative investment category. Crypto-investors can be early adopters but as the security token market develops more traditional investors are coming into play.

Accredited / Well-informed Investors

The primary accepted investors for early Security Token Offerings will be accredited/well-informed investors. The definition of these investors varies by jurisdiction but they are generally individuals, wealthy enough or knowledgeable enough to manage their own money and take on the risk of losing what they invest.

Broker Dealers, Investment Banks, Assets Managers

These are the parties that work with, advise and/or manage their clients money whether it's individuals or companies.

Cryptofunds

These are hedge funds that are already specialized in investments into blockchain activities such as direct equity in blockchain companies and frequently participating in token sales.

Retail distributors

The way to obtain access to the average retail investor is to work with institutions who traditionally have access to retail investors such as banks and insurance companies.

Syndicates/Pools

Large groups of investors, especially from the crypto space, have come together to form investing syndicates or pools.

Regulators

An integral part of the security token ecosystem are the regulators located in the various jurisdictions where offerings take place.

EUROPE

Luxembourg	UK	France
Commission de Surveillance du Secteur Financier (CSSF)	Financial Services Authority (FSA) Financial Conduct Authority (FCA)	Autorité des marchés financiers (AMF)
Germany	**Liechtenstein**	**Malta**
Federal Financial Supervisory Authority (BaFin)	Liechtenstein Market Authority (LMA)	Malta Financial Services Authority (MFSA)

NORTH AMERICA

USA		Canada
Security and Exchanges Commission (SEC)	Commodity Futures Trading Commission (CFTC)	Canadian Securities Administrators (CSA)

Tokenization Platforms

Due to all the important factors that go into launching a Security Token Offering there are many companies referred to as Tokenization Platforms that are working towards easing the process of launching and managing a security token. Tokenization platforms can help bring together all of the aspects of an offering into one place.

During the actual issuance of the token there are **compliance platforms** that can ease the process of onboarding investors, streamlining the KYC and AML processes and providing traceability and reporting information to stay in compliance with all necessary regulations while best serving the investors. Some others will act as **transactional platforms** to ease the process of obtaining investors payments and also managing the actual token allocation.

After the security token has been issued and allocated to the investors, companies will have to handle the **lifecycle management of the token**. During this phase compliance platforms can provide for

investor portals, allowing investors access to the information regarding their token and the company's performance. Compliance platforms also provide for ongoing KYC/AML compliance as well as easing traceability and reporting processes and validating whether or not tokens can be traded and to whom. Transactional platforms provide key services such as managing the actual token transfers and managing revenue distributions such as dividend payments to investors.

These platforms will use blockchain technologies differently. Some will have all of the compliance logics off-chain and create a lot of dependencies to their service. Others will use blockchain standards to ensure interoperability and to provide security and flexibility to the issuer.

Wallets and Custodians

Wallets are key elements in the tokenized ecosystem. **Each counter-party will need wallets to manage their identity, perform operations and store tokens.**

Investors will need wallets in order to receive their tokens during the token sale, and to control their onchain identity. Also, if investors want to make their investment using crypto assets they will need to hold those assets in a wallet they control and can distribute from. On their side, Issuers will also need a multi-sig wallet to deploy the smart contracts and to use all of their functions. They will also need wallets in order to receive the funds coming in from investors and paid in cryptocurrencies.

Some of the main wallets being used for token sales are Metamask, MyEtherWallet and Mist. All of these wallets are compatible with ERC20 tokens, allowing for the issuance and reception of tokens. These wallets are easy to setup and to manage. For multi-sig wallets, which allow more control thanks to permissions-systems, several solutions exist on the market and are easy to set up.

Custodian services give issuers and investors alike confidence the assets are managed securely. These services will manage the keys and operations of the wallets, escrow services during the issuance, cold wallet storage, cash distribution, and other operations. In some cases an institutional investor handling large amount of tokens may mandate a third-party to manage its digital assets.

It is important to understand that security tokens are secure and cannot be lost by investors, even if they don't use custodian services. If they lose the key to access their tokens, a specific request to the issuer can be done to burn (destroy) the lost tokens, and to allocate new ones to a new wallet held by the investor. Unlike cryptocurrencies working in a decentralized way, security tokens are issued by a single legal entity that is responsible for the good management of the securities. Technically, the issuer will retain the possibility to create/destroy tokens at any time.

CONCLUSION

By reading this Ebook we hope we have given you a solid understanding of what a Security Token Offering is and what is needed to issue compliant security tokens on the blockchain.

At Tokeny we provide the end-to-end solutions behind the tokenization process, enabling capital investment for the issuer. Tokeny has also released an open source set of blockchain solutions, the T-REX (Token for Regulated EXchanges), to ensure interoperability and compliance in the transfer of tokenized securities.

To find out more, please visit www.tokeny.com.
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