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SECURITY TOKEN OFFERING: THE COMPLETE HANDBOOK

Navigating security token standards, regulatory compliance, custom development, launch strategies, and STO specifics across industries.

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INTRODUCTION TO SECURITY TOKEN OFFERING

A security token offering, or STO, is a type of public offering that simplifies the trading of financial assets through blockchain. Securities are presented as fungible and transferable **investment instruments that have real-world value**. A security token holds information about the tokenized asset and grants stakeholders the right to product ownership.

An STO is **legal and regulated** and is regarded as a safe way for companies to acquire funding. Being subject to the same regulatory requirements as traditional securities, the STO issuing process closely resembles that of traditional capital markets. By involving different professional service providers, including tax professionals, legal councils, and financial advisors, a security token offering can provide investors with an additional level of protection.

A security token offering relies on blockchain technology. In contrast to traditional financial systems, STOs use smart contracts to support participants. Smart contracts help ensure that all parties comply with their obligations.

It is **estimated** that **between April 2021 and April 2022, security token trading volumes increased by 386% while their market cap grew by 2650%**. In May 2022, the total market cap of traded security tokens grew twentyfold in a year to surpass $19 billion.

The Tokenizer

Asset-based and fiat-based tokens

Security tokens can be broadly divided into fiat- and asset-based tokens. To navigate the evolving landscape of security tokens, it's essential to understand the dynamics and implications of both types.

ASSET-BASED TOKENS

Backed by an asset, such as silver or gold.

— Real estate

Tokenized real estate equity that provides ownership and investment opportunities.

— Commodities

A physical commodity, such as oil, gas, and precious metals transformed into a digital asset.

— Capital markets

Company shares turned into security tokens offering token holders different benefits, such as dividends or voting rights.

— Equity funds

Tokenized shares that enable token holders to receive a portion of the fund's earned profits.

FIAT-BASED TOKENS

Government-backed currencies that are not backed by commodities.

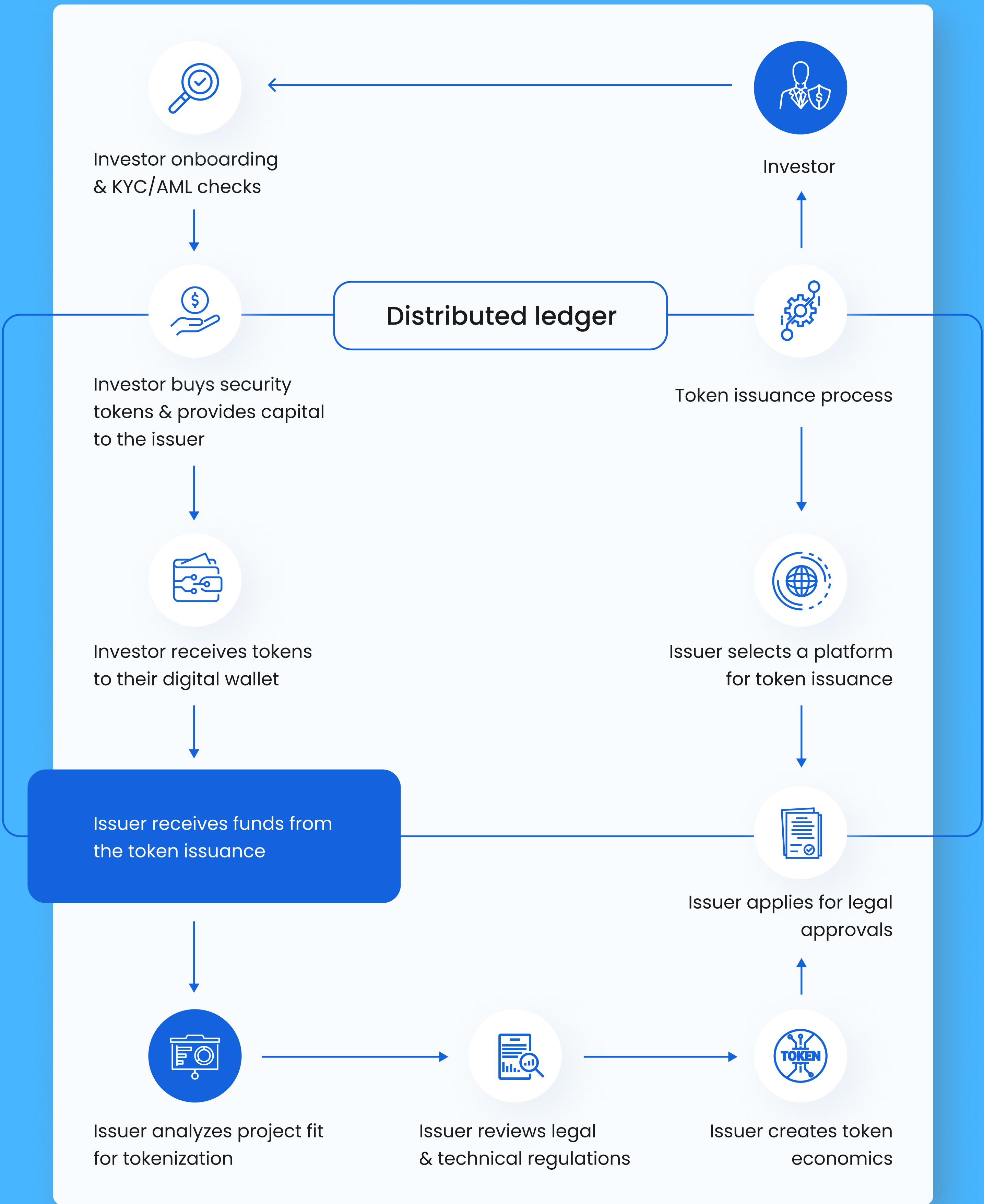
— Stablecoins

Fiat-based tokens pegged to the value of a country's specific currency to maintain stability and reduce volatility.

— Central Bank Digital Currency (CBDC)

Government-backed digital currencies used by consumers and businesses to remove intermediaries and streamline traditional financial processes.

Breakdown of the STO lifecycle



Strengths and weaknesses of tokenized offerings

Security tokens bring multiple benefits for investors:

- They carry low risks due to the stringent enforcement of laws and regulations in this area
- The use of smart contracts that store all the required rules and data helps reduce, or even completely eliminate, traditional paperwork and dependencies
- Trading can be done 24/7, providing investors with convenience and liquidity
- Security tokens ensure easy access for beginners and expert investors alike

However,

- Security tokens are subject to increased regulation, making administrative processes complicated
- STO platforms have to constantly keep up with continually changing regulations regarding know-your-customer (KYC), anti-money laundering (AML), exchange approvals, and ownership tracking
- Regulations in some areas may set limits on who can invest in STOs (e.g., residents only), thus reducing the pool of investors

STO vs ICO: contrasting approaches in tokenization

An ICO usually takes place when a company sells cryptographic assets (tokens) in order to raise funds for its operations. The company usually conducts the sale of tokens for a limited time frame, until it reaches its fundraising goals.

ICOs quickly became a popular means of fundraising for projects. Although initially developed with goodwill, ICOs soon became a mechanism for fraud and manipulation, including cases where companies just vanished, along with the money, when the ICO ended.

Since then, STOs, which are subject to rules and regulations, have become a more secure alternative to initial coin offerings, which are still prone to fraud.

ICO	STO
Susceptible to fraud	More secure alternative
Unsafe in terms of regulation, does not necessarily have to comply with legal obligations	Subject to rules and regulations, offering token holders legitimate investment opportunities
Presented as a utility token	Backed by real-world value
Is not considered an investment	Provides investment opportunities

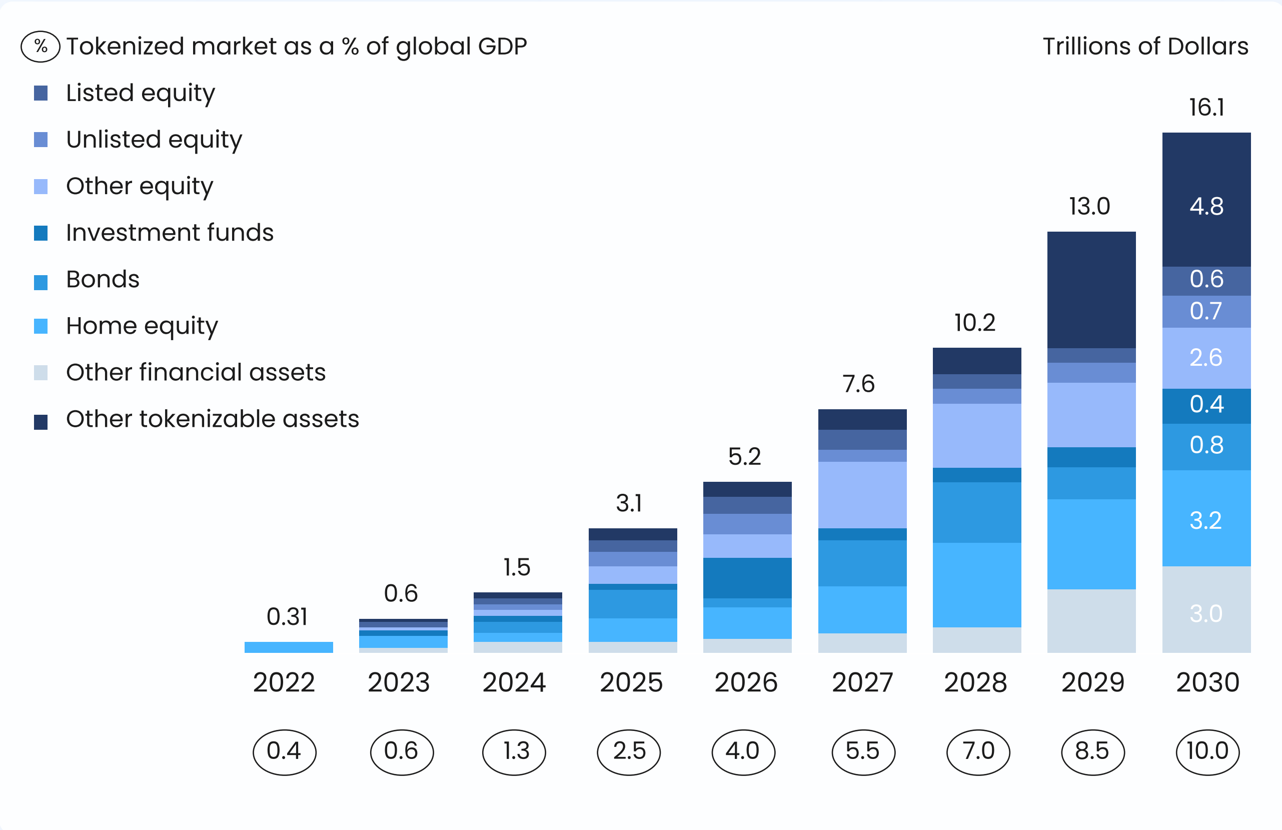
Overall, security token offerings constitute a hybrid approach: they provide better regulatory safety compared to initial coin offerings and overlap with traditional public offerings through blockchain technology.

STO market predictions

STOs have gained greater popularity compared to ICOs, thanks to their improved security and compliance. The number of tokenization-related companies rises annually, and more and more STO projects have successfully raised millions of dollars.

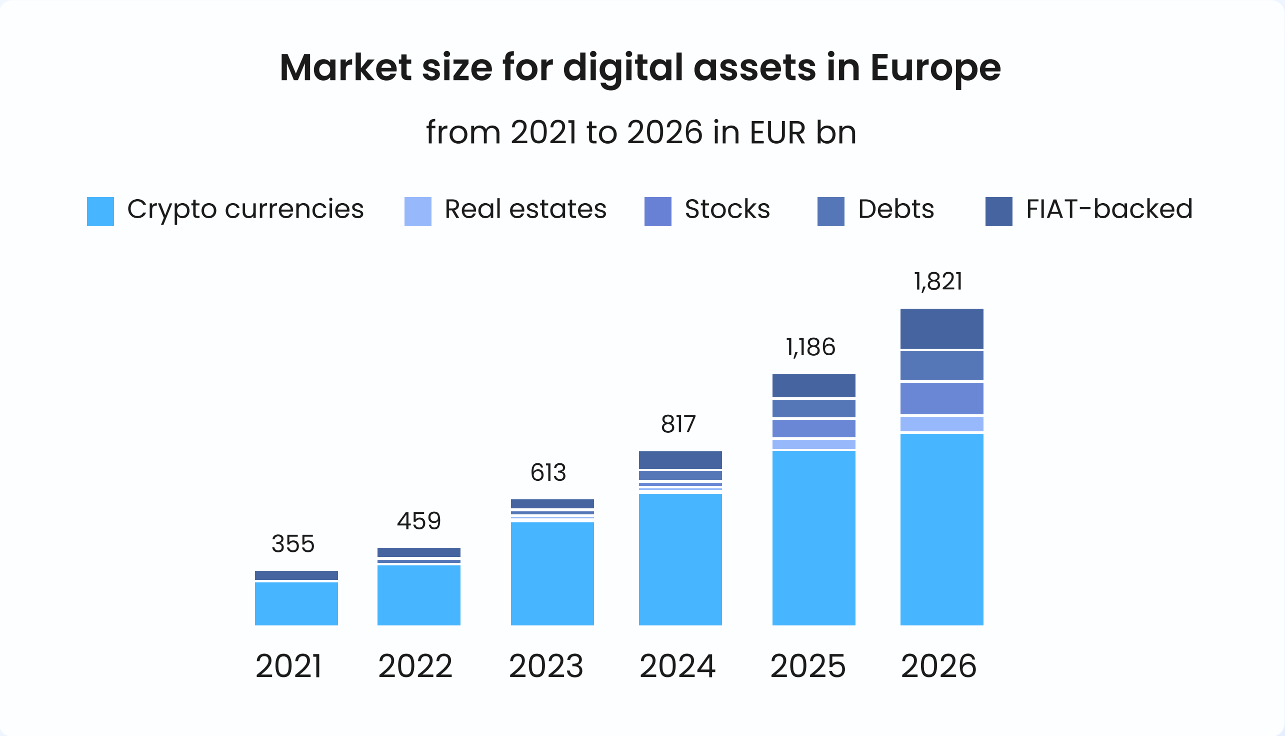
According to a **BCG x ADDX report**, tokenized assets are projected to gain wider traction in real estate, investment funds, bonds, and equities. Their usage is also expected to grow with regard to less traditional assets, for instance, car fleets or patents.

Researchers predict that tokenized assets will see a fiftyfold increase between 2022 and 2030, from $310 billion to $16.1 trillion, thus making up 10% of global GDP by the end of the decade.



Source: World Economic Forum – Global Agenda Council, BCG Analysis

Research by Plutoneo and Tangany concludes that Europe is expected to see an STO boom in the next five years. The researchers estimate the market size for digital assets in Europe at more than a billion euros by 2026.



Source: Plutoneo and Tangany research

McKinsey & Co. states that private markets overshadow public markets in growth and value. Currently, the total market for private assets is estimated at $7.5 trillion and is expected to grow to $15 trillion. According to McKinsey, tokenization of the private market is one of the most interesting opportunities in capital markets today.

OVERVIEW OF SECURITY TOKEN STANDARDS

Before launching an STO campaign, it is mandatory to ensure that security tokens are fully compliant with specialized standards.

Token standards are viewed as a set of predetermined rules that guide the design, development, behavior, and operation of tokens on a certain blockchain platform. They are used to enforce compliance requirements and control transfers to eligible parties.

As of today, different security token standards can be leveraged within an STO campaign launch, the most popular being **ERC-1400, ERC-1404, ERC-3643, ERC-20, and ERC-721.**

ERC-1400

Designed especially for security tokens, the ERC-1400 security token standard enables differentiated ownership, error signaling, partial fungibility, document handling, gatekeeper (operator) access control, and issuance/redemption semantics. With ERC-1400, each trade has to be validated by a specific key that is created off-chain.

What's noteworthy is that ERC-1400 incorporates both new and existing standards, with the goal of establishing a single, unified framework for all security tokens and allowing for their legal deployment.

ERC-1404

ERC-1404 possesses the same features as the popular ERC-20 token standard, yet comes with some enhancements that make it possible for issuers to enforce regulatory restrictions.

The ERC-1404 token standard enables the implementation of a whitelist, which helps control who can own a token. It also allows the creator to implement any rules required to be compliant in their specific jurisdiction and helps shareholders effectively interoperate within the entire Ethereum ecosystem.

ERC-1404 is relatively easy to deploy. However, it has the disadvantage that enforceable restrictions cannot be modified throughout the lifecycle of the token.

ERC-3643

Previously known as the T-REX protocol, the ERC-3643 token standard is compatible with ERC-20, meaning that it is interoperable with the same wallets and dApps in the Ethereum ecosystem.

ERC-3643 gives more control to the issuer, and assets can be recovered even if the private key of the wallet has been lost. It guarantees asset ownership by digital identity mechanisms.

ERC-721

ERC-721 is a widely adopted standard for non-fungible tokens (NFTs), which are unique and indivisible assets.

Although ERC-721 tokens were not specifically designed for security tokens, they can be utilized in certain industries. For instance, in real estate, they can represent individual properties, or in the precious stones market, they can represent unique gemstones.

However, it is crucial to note that ERC-721 tokens still need to adhere to security laws and regulations, which can vary across jurisdictions.

ERC-20

ERC-20 is the standard used for Ethereum-based fungible tokens. It is widely used in STO projects due to its high customizability and the possibility to include a wide range of features into the token contract (e.g., dividends or voting rights).

The ERC-20 standard can be used for multiple purposes for STOs, i.e. from tokenization (e.g., real estate property or company equities) to fundraising and trading.

REGULATORY FRAMEWORKS AND JURISDICTIONS

Different countries have their own rules for security token offerings, and there are no universal regulations in place.

The following provides an overview of the rules that STO campaigns must adhere to in the **United States, European Union, United Kingdom, and Asia.**

United States

In the US, security token offerings are overseen and regulated by the Securities and Exchange Commission (SEC). To make it easier to understand whether a digital asset falls within the category of "security" under federal securities laws, the SEC issued a **special framework** underpinned by **the Howey test.**

Determining if a digital asset is considered a security

According to the SEC framework, an asset is defined as a security if it meets the following 4 criteria:

— It has an investment contract
— There is a common enterprise carrying out the campaign
— Asset owners expect to gain profit
— The offering is promoted by a third party

If these specifications are not met, an asset is considered a utility token. Owners of such tokens gain access to products or services offered by the token provider. In contrast to security tokens, the key function of which is to represent ownership of the company's shares, utility tokens serve as promotional tools.

Key SEC conditions for launching an STO

According to the SEC, a security token offering must comply with the following rules to have the right to be listed on exchanges:

Detailed campaign information

Potential STO holders must have access to all the relevant data about the campaign, including information about the STO-issuing company, the nature of its business, the identities of its officers and directors, and its financial statements. This data must be open to the public, so the SEC allows businesses to advertise security tokens via mass media such as newspapers, blogs, company websites, etc.

Trading guidelines

The security token offering campaign must have clear and concise guidelines on how the initial and subsequent trading will be conducted.

Holding period observation

The key requirement is that the investor must hold the securities for a minimum duration of one year. The holding period starts when the securities are fully paid for.

SEC exemptions

The SEC regulations include a number of capital-raising exemptions, which attract different requirements and restrictions. The most common ones are:

Regulation D

This combines rules 500-508, specifying the terms under which an STO can get an exemption, with rules 506 (b), 506 (c), and 504 being of primary importance.

REG D

	Rule 506 (b)	Rule 506 (c)	Rule 504
Overview	Under this exemption, investors must self-verify their accredited status, while issuers should confirm it	Allows unlimited raising of capital. However, the STO issuer is obliged to check or take “reasonable steps” to verify that the investors are really accredited	Exempts from registration the offer and sale of up to $10 million of securities in a 12-month period
Fundraising limit	None	None	$10 million
Investor requirements	Unlimited number of accredited investors and up to 35 “sophisticated” but non-accredited investors in a 90 day period	Accredited investors only	Unlimited number of accredited and non-accredited investors
SEC filing requirements	Form D must be filed within 15 days after the first sale of securities in the offering	Form D must be filed within 15 days after the first sale of securities in the offering	Form D must be filed within 15 days after the first sale of securities in the offering

Regulation A+

This regulation is especially beneficial for startups or projects that are at an early stage of development and are functioning like a traditional initial public offering. The regulation makes it possible to raise up to $75 million and attract unaccredited investors. Reg A+ securities also have no restrictions on resale, which makes them more liquid on the market.

REG A

Overview	Fundraising limit	Investor requirements	SEC filing requirements
Regulation A introduced two tiers of offerings (Tier 1 and Tier 2), each with slightly distinct requirements	Tier 1: Up to $20 million of securities in a 12-month period without any requirements for investors Tier 2: Up to $75 million of securities in a 12-month period with an investment limit requirement for non-accredited investors	Both accredited and non-accredited investors	Form 1-A is required to be filed Tier 1: the offering circular must be filed with, and is subject to review and qualification by the staff at the SEC and is subject to review and qualification by the securities regulator in the states where the offering is being conducted Tier 2: the offering circular is subject to review and qualification by the staff at the SEC but is not subject to review or qualification by state securities regulators. Financial statements disclosed in a Tier 2 offering must be audited by an independent accountant

Regulation CF

Regulation CF, also known as Regulation Crowdfunding, provides investors with an opportunity to raise necessary capital really fast. Crowdfunding is a financing method in which money is raised by soliciting relatively small individual investments from a large number of people.

This regulation is great for projects that do not need huge capital.

REG CF

Overview	Fundraising limit	Investor requirements	SEC filing requirements
Provides an exemption from full registration under the Securities Act of 1933 and requires all transactions under Regulation Crowdfunding to take place online through an SEC-registered intermediary, either a broker-dealer or a funding portal	Up to $5 million of securities per year	Both accredited and non-accredited investors	Form C must be filed with the SEC

Regulation S

The Regulation S bond type is available for offers and trades of securities outside of the USA to US and non-US qualified institutional buyers (QIBs). It exempts from SEC registration all STO offers and sales that are completed entirely outside the US and made only to non-US residents.

REG S

Overview	Fundraising limit	Investor requirements	SEC filing requirements
Provides an exemption for the sale of securities outside the United States	None	Non-US investors only	None

Rule 144A

Rule 144A allows qualified institutional buyers to trade debt securities without registration and review by the SEC.

It allows purchasers of such securities to resell them if:

1. the sale is to a qualified institutional buyer;
2. the seller ensures that the buyer is aware that the seller relies on Rule 144A to sell their security;
3. the securities are not of the same class as securities that are traded on a national securities exchange;
4. the purchaser of a security has the right to request information from the original issuer of the security.

RULE 144A			
Overview	**Fundraising limit**	**Investor requirements**	**SEC filing requirements**
Allows shareholders to resale certain restricted securities to qualified institutional buyers	None	Qualified institutional buyers	Form 144 must be filed with the SEC

European Union

Security token offerings launched on the territory of the European Union are regulated by the European Securities and Markets Authority (ESMA).

However, some EU countries, such as Malta and Estonia, have their own specific requirements for launching an STO. Once an STO has been successfully registered in one EU jurisdiction, it is automatically compliant with all other EU members.

Documents regulating STOs in the EU

The core document regulating STO campaigns in the EU is the **Prospectus Regulation**. It requires the provision of adequate and complete information about the STO to investors prior to the sale of securities anywhere in the EU.

According to the document, to launch an STO, a company needs to submit a prospectus registration application and get the timeline for project verification and delivery set by the financial authority of the chosen EU jurisdiction. However, EU member states may exempt the need for a prospectus if the STO intends to fundraise up to €8 million. Individual EU member states, though, can change this exemption figure, which means that it does not always match the maximum allowance.

In addition, in July 2022, the European Union finalized a **document** regulating its pilot program on the adoption of tokenized securities and other infrastructures based on distributed ledger technology. Running from 2023 to 2026, the Sandbox will support 20 projects annually. It will include public sector use cases on the European Blockchain Services Infrastructure, a multi-country project under the Digital Decade supported by the Commission, all Member States, Liechtenstein, and Norway.

Local regulations overview

Jurisdiction	Are security tokens securities in this jurisdiction?	Do the prospectus duties of this jurisdiction apply to STOs?	Do issuers of security tokens have to comply with further legal requirements?	Is there specific local regulation or guidance relevant to STOs?
France	Yes	Yes	The article R.211-9-7 of the French Monetary and Financial Code states that the distributed ledger in which security tokens are registered must be used in such a way as to ensure the proper recording and the integrity of registrations, to allow the identification of the owners, the number and the nature of the securities.	No, but France is considering implementing a specific regulatory framework for utility tokens and other digital assets within the bill PACTE 7. Token issuers would be able to apply for an optional visa with the AMF (Autorité des marchés financiers).

Jurisdiction	Are security tokens securities in this jurisdiction?	Do the prospectus duties of this jurisdiction apply to STOs?	Do issuers of security tokens have to comply with further legal requirements?	Is there specific local regulation or guidance relevant to STOs?
Germany	Tokens offered as STOs are classified as securities from a regulatory perspective if they are standardized, transferable, and tradeable on a capital market.	Yes	Since tokens are often sold via the Internet, e-commerce regulations have to be obeyed. Once tokens shall be traded, regulatory restrictions apply to the trading platforms. This usually leads to a license requirement.	BaFin (Federal Supervisory Authority) guidelines
Italy	The Italian supervisory authority for the securities market (CONSOB) confirmed that the “tokenization” process is similar to the creation of securities. It stated that “investment-token” and “security-like token” would qualify as securities.	Yes, CONSOB issued a set of resolutions that identify the circumstances under which an STO would qualify as a public offer of financial products.	Because of the lack of specific regulation for STOs in Italy, issuers would be subject to the same provisions that are applicable to the issue, offer, and negotiation of securities, to the extent that security tokens would qualify as such.	CONSOB (The Commissione Nazionale per le Società e la Borsa)
Switzerland	When a token qualifies as an asset respectively security token, it is classified as a security under the Swiss financial market law.	If shares or bonds are tokenized and the offering is public, STOs trigger the prospectus duty according to the Code of Obligations.	Yes. Moreover, contract, corporate, data protection, and tax law issues arise in relation to STOs.	FINMA (Swiss Financial Market Supervisory Authority)
Netherlands	To be qualified as the security, a token should qualify as (a) a negotiable share or other negotiable instrument or right considered equivalent and not being an apartment right; (b) negotiable bond or other negotiable debt instruments, (c) any other negotiable instrument issued by a legal person, corporation or institution by which securities referred to under (a) or (b).	Yes	There will be supervision if tokens are sold to parties in the Netherlands. Unfair commercial practices towards consumers are prohibited. Besides, an STO organization has several privacy implications from a data protection law perspective.	AFM (Dutch Authority for the Financial Markets)

Jurisdiction	Are security tokens securities in this jurisdiction?	Do the prospectus duties of this jurisdiction apply to STOs?	Do issuers of security tokens have to comply with further legal requirements?	Is there specific local regulation or guidance relevant to STOs?
Belgium	There are no specific regulations that apply to tokens. How tokens will be qualified depends on the underlying right they represent. STOs would likely qualify as securities and fall under the regulatory framework applied to securities.	Yes	Since tokens are often sold via the Internet, e-commerce regulations have to be obeyed. Once tokens shall be traded, regulatory restrictions apply to the trading platforms. This usually leads to a license requirement.	FSMA (Financial Services and Markets Authority)
Austria	Whether a token is a security generally depends on the specific rights securitized in such a token and is determined on a case-by-case basis.	Yes	Since tokens are often sold via the Internet, e-commerce regulations have to be obeyed. Once tokens shall be traded, regulatory restrictions apply to the trading platforms. This usually leads to a license requirement.	FMA (Austrian Financial Market Authority)
Hungary	Depends on the specific right securitized in tokens.	Yes	Since tokens are often sold via the Internet, the issuer must comply with e-commerce regulations. If securities are traded on a regulated market the issuer must observe market follow-up obligations. Compliance with tax laws is also a must.	CMA (Hungarian Capital Market Act)
Luxembourg	The country introduced a bill according to which a security token is a form of "dematerialized security".	Yes	Since tokens are often sold via the Internet, e-commerce regulations have to be obeyed. Issuers are generally expected to follow AML/KYC procedures. If security tokens are listed on a regulated market or multilateral trading facility, the issuer must also comply with the Market Abuse Regulation requirements.	CSSF (Commission de Surveillance du Secteur Financier)

United Kingdom

The UK regulator, the Financial Conduct Authority, takes a technology-neutral stance on regulation. Therefore, irrespective of the technology, it is the underlying asset or underlying activity, which may fall within the regulatory perimeter.

At present, FCA defines a security token as any token, which constitutes a “specified investment”. This means an investment regulated in the UK. FCA also mentions that even if a token that looks like a share is not a transferable security under MiFID (the Markets in Financial Instruments Directive), it may still be a specified investment for UK purposes.

Additional guidance has been provided in relation to a security token in the FCA’s recent **Guidance on Crypto Assets Consultation Paper**.

Asia-Pacific

Each Asian country regulates STO campaigns differently according to its national finance legislation.

In **South Korea**, the Financial Services Commission (FSC) has taken a proactive approach towards the regulation of security tokens. With the release of the **guidelines**, the FSC aims to bring security tokens under regulatory oversight.

As a part of a broader effort to regulate the blockchain and crypto sector, South Korea's National Assembly is currently considering 17 separate legislative frameworks. The discussions are aimed at creating the Digital Asset Basic Act or DABA, which will serve as the all-encompassing legal framework for regulating Korea's crypto industry.

In **Japan**, rules regarding security token offerings are outlined in the **2019 amendments** to the Financial Instruments and Exchange Act (FIEA). According to the document, blockchain-recorded and transferable securities may be put up for sale without registration if the tokens are offered only to qualified institutional investors or up to 50 individual investors. Businesses wanting to launch their STOs in Japan are required to disclose all relevant information about the company and the product.

If an STO is to be held in **Singapore**, security tokens must comply with the same standards as traditional capital market offerings. The company behind the STO must issue a prospectus, share complete campaign information, and specify potential risks. The document regulating security offerings in Singapore is the **Securities and Futures Act (SFA)**.

In the meantime, in 2021 **China** **outlawed crypto trading activities**, including security token offerings. The ban is recorded in a regulatory document released by The People's Bank of China (PBOC).

Australia has also taken significant steps to regulate security tokens. The Australian Securities and Investments Commission (ASIC) has released **guidance** on the treatment of crypto assets. In 2022, Australia's Treasurer created a **statement** that unveils plans for crypto regulation. According to the statement, the Treasury will prioritize 'token mapping' work, which will help identify "how crypto assets and related services should be regulated".

The **Philippines** is another country that takes a proactive approach towards the regulation of crypto assets. The Philippine Central Bank, the Bangko Sentral ng Pilipina (BSP) requires new virtual asset services providers (VASP) to register. However, in August, 2023, the bank made an **announcement** that it would close the regular application window for new VASP licenses for three years starting September 1, 2022.

In 2023, The Securities and Exchange Commission (SEC) in the Philippines **announced** a partnership with the University of the Philippines Law Center (UPLC), through the University of the Philippines Legal Center Research Program to research on virtual currency regulation.

HOW TO LAUNCH AN STO

The STO issuance process is very demanding and closely resembles that of traditional capital markets. It requires due diligence, attention to numerous essential details, and a thorough understanding of every process.

Below, we will look into all the stages needed to deliver a successful STO campaign.

STAGE 1. PREPARATION

Think about how you will engage investors

Come up with ways of attracting potential investors and outline how they stand to benefit from engaging in your STO campaign

Consult legal advisors

Sort out regulatory requirements across different jurisdictions and present that information to investors

Define the token value

Determine a token's value in accordance with its role, purpose, and feature

Form a team of experts

Bring together members from various industries: legal, marketing, business development, financial, etc.

Choose the issuance platform

Research and select the most suitable issuance platform that will serve all user, company, and investor needs (*see the overview of the most popular STO platforms below*)

STAGE 2. PRE-STO

Work out a marketing & PR strategy

Create a detailed strategy that will cover aspects such as social media, promotion, community, and email marketing

Prepare a detailed whitepaper

Provide the core info about your project and include a legal disclaimer, the company's financial model, its plans within the current market, and an overview of the technology with which the project intends to reach its goals

Choose a partner exchange

Ensure that your exchange partner will help investors comply with KYC and AML regulations in their country

Focus on token creation

Get down to the token development process. Remember that it will largely be preconditioned by the platform you analyzed and selected during the preparation stage

STAGE 3. STO LAUNCH

Run a crowd sale

Initiate a crowd sale and start selling tokens to the general public and raising funds

Provide a decent level of support

Ensure that the community support service is available 24/7 and capable of effectively addressing users' queries

Publish STO issuance info on the website

Inform investors about how they can purchase the tokens and which procedures they need to undergo beforehand

Keep participants updated about changes

Notify your audience about any changes and updates swiftly and regularly so as to establish a long-term relationship with your investors

STAGE 4. POST-STO

Concentrate on product development

Get down to product development and try to meet all the objectives that you outlined in your whitepaper

Create a community of project supporters

Remember to form a community of project supporters to keep promoting and marketing your product further

Manage investor expectations

Maintain constant communication with your investors and keep them in the loop about development progress and milestones

OVERVIEW OF WIDELY USED STO PLATFORMS

Businesses and individuals seeking to leverage ready-made STO platforms for launching their STO campaigns have a range of solutions to choose from.

Each STO platform comes with its unique technical features, advantages, and limitations, which is why it is crucial to conduct a thorough analysis of the preferred STO solution to ensure it aligns with specific business objectives.

Below, we will delve into some of the most popular STO platforms, namely **Tokeny, Securitize, Polymath, Securrency, and Tokensoft**, providing an overview of their primary characteristics.

STO platform	Headquarters	Year of formation	Blockchain technology	Token standard	Number of created and managed tokens
T-REX by Tokeny	Luxembourg	2017	Ethereum	ERC-3643	40+
Securitize	USA	2017	Ethereum Algorand Avalanche	Digital Securities (DS) Protocol	100+
Polymath	Canada	2017	Polymesh Ethereum	ERC-1400	200+
Securrency	USA	2015	Ethereum Stellar Ripple GoChain EOS	CAT-20, CAT-721	-
Tokensoft	USA	2017	Ethereum Stellar Corda Hyperledger	ERC-1404	50+

T-REX by Tokeny

Developed by Tokeny Solutions, the T-REX platform helps its users effectively and compliantly issue, manage, and transfer security tokens, and ensures smooth communication between issuers and investors.

The solution provides features such as token recovery mechanisms, investor onboarding, compliance enforcement, reporting, and many other handy functions and possibilities.

It also allows users to choose and integrate their desired KYC/AML parties.

Securitize

Securitize is an end-to-end tokenization solution that boasts over 400,000 onboarded investors and users. It helps established startups and private companies alike to raise capital and provide the potential for liquidity.

Securitize relies on its Digital Securities Protocol (DS-Protocol) to include all the necessary components needed for smooth security token issuance.

The Securitize platform provides support at all stages of the STO process, from primary issuing to secondary market trading. You can find different types of programs on Securitize for raising capital, such as Reg. D, Reg. D + S, and Mini-IPO.

Securrency

Securrency has been designed to empower asset managers, banks, broker-dealers, wealth managers, and marketplace operators to tokenize any assets, including, but not limited to, equities, fixed income, and funds.

The solution supports the entire digital asset lifecycle, from onboarding, capital raising, and pre-trade analysis to trade execution and post-trade and capital optimization.

The Securrency platform allows its users to embed compliance, identity, security, transaction, and liquidity rules into the tokens themselves, and customize workflows and analytics to automate the digital asset lifecycle.

Polymath

Polymath is an Ethereum-enabled security token issuance platform. It empowers entities seeking to raise capital to issue standardized, Ethereum-based security tokens that are fully compliant with SEC regulations.

Importantly, the Polymath team has contributed to the development of the ERC-1400 security token standard and has even introduced its own public permissioned layer 1 blockchain, Polymesh, which is focused on improving the security token industry.

Tokensoft

Tokensoft is a tokenization platform that helps startups, funds, businesses, and investment banks alike to issue digital assets and provide compliance requirements for digital assets and digital securities.

The Tokensoft platform is said to offer the highest standards of regulation and compliance, regardless of jurisdiction.

EXPLORING THE ADVANTAGES AND CONSTRAINTS OF A CUSTOM STO PLATFORM

Benefits of custom STO platform development

Despite limitations imposed by rules and regulations, businesses regularly turn to the development of STO platforms. The following are some of the major benefits associated with custom STO platform development.

Better liquidity

Since security tokens enable fractional ownership and lower minimum investments, the cryptocurrency market can benefit from increased liquidity. For example, an owner of an expensive artwork has more chance of finding investors interested in fractional ownership of this artwork, as not all investors will have the means to purchase the entire asset.

Increased investor trust

Increased regulations associated with security tokens can help build investor trust in cryptocurrency and eliminate skepticism. This will help bring new players to the market and increase capital. Moreover, as the involvement of middlemen declines, the chances of corruption and fraudulent activity during the investment process reduce as well, thus bringing more trust to STO platforms.

Greater transparency

The use of blockchain technology for STO platform development helps ensure efficient data verification and tracking while preventing data tampering. In addition, STOs offer investors complete information about the issuer and their tokens.

Dealing with constraints

If you're planning to build your own STO platform, you need to consider the **restrictions applied to security tokens** across jurisdictions. Capital markets are subject to complex regulations, and while crypto is inherently international, securities regulations are entirely domestic.

STO legal regulations and rules may vary depending on multiple factors, such as:

- Nature of the services provided
- Type of securities
- Type of targeted investors

Therefore, **it is strongly recommended to seek legal advice** before implementing a security exchange or STO platform.

Moreover, security tokens require compliance with continually changing anti-money-laundering (AML) and know-your-customer (KYC) requirements, which imposes additional difficulties associated with STO platform management.

There are specific limitations to the infrastructure design of conventional securities. For example, the majority of banks, issuing companies, and peer-to-peer platforms are only allowed to operate in their regional jurisdiction and cannot permit the trading of securities outside of this specific jurisdiction. What's more, most security services can be accessed only by investors that fulfill certain criteria.

However, although security token exchange platforms are bound by the jurisdiction in which they operate, they can use a blockchain to enable trading with a much broader audience. This is because blockchain technology allows the ownership of securities to be embedded in the token itself, thus ensuring fast, secure, and effective transfer of security tokens.

FROM REAL ESTATE TO NATURAL RESOURCES: HOW STOS ARE UNLEASHING POTENTIAL IN VARIOUS INDUSTRIES

STOs have gained significant popularity across diverse industries due to their provision of a secure and transparent avenue for investment and fundraising. Among the sectors embracing this trend are real estate, precious stones and metals, natural resources, and private equity.

Real estate

STO solutions offer a unique opportunity to tokenize real estate assets, facilitating the process of purchasing shares in a property. They also create opportunities for fractional ownership, making it easier for smaller investors to participate as well.

It is **estimated that 89%** of all traded security tokens are allocated for real estate, while the **global real estate market is expected to reach $5388.87 billion by 2026**, with a CAGR of 9.6%.

With tokenization and fractional ownership, practically anyone can participate in real estate investment, increasing the market's accessibility. It is a win-win solution since investment sponsors get access to a new investor pool while retail investors have more options and greater flexibility.

NOTABLE PROJECTS

Project name	Country	Foundation date	Key facts
RedSwan CRE	USA	2018	— A marketplace of tokenized commercial real estate — Attracts investors by offering a $1,000 minimum commitment — Boasts over **$7 billion** in transactions, **$12 billion** in vetted projects, and 30,000 accredited investors
St. Regis Aspen Resort Tokenization	USA	2018	— The resort owner tokenized the building by creating **Aspen Coins** — The tokenized securities represent an 18.9% equity stake in the property — Each Aspen coin was sold for $1 to accredited investors, with a required minimum purchase of 10,000 tokens
Xtreme Security Token Offering	USA	2022	— Launched by **Xtreme International Realty**, a real estate agency in Florida — Offers the XTREME token — a fractional investment token designed for investors interested in distressed properties — XTREME tokens' proceeds will fuel workforce expansion, from 270 to 2,500 sales associates in two years, and facilitate the acquisition and rehabilitation of a wide range of distressed properties

Precious stones and metals

According to **research, diamonds are a $1.2 trillion natural resource** and are regarded as a secure and stable asset class. They also have a dense value concentration of approximately $400,000 per ounce. Meanwhile, the **overall gemstone market is projected to grow to $53,146.2 million by 2032**.

The industry is obviously on the rise, and more and more diverse ways of investing in it are emerging, an STO campaign being one of them.

This involves the **tokenization of ownership rights to precious stones such as diamonds and gems, which are offered to investors in the form of security tokens**. The precious stones industry can benefit from STOs through a simplified process of buying, selling, and tracking the ownership of the gems.

NOTABLE PROJECTS

Project name	Country	Foundation date	Key facts
MetalStream	Malaysia	2020	— Issued MSGLD security tokens backed by one gram of LBMA-certified gold bullion — Tokens were available for purchase through a private placement — The company offered **2.8 million tokens** representing 2,800 kg of gold
Millennium Sapphire	USA	2021	— It is a carved natural sapphire weighing 12.3 kg and valued at **$150 million**, one of the most famous works of art in the world — Millennium Sapphire Studios launched its **MS Token STO campaign** — The STO gives investors pro-rata interest in The Millennium Sapphire Studio's NFT productions and future dividends from activities as well as the stone itself

Natural resources

Launching an STO campaign for natural resources such as oil, gas, and even renewable energy can be an effective way for businesses to raise capital, attract a global pool of investors, and provide greater liquidity and transparency to investors.

While STOs for natural resources have been generating interest among businesses for years, companies in this sector have been quite cautious about embracing STOs and have only recently begun to test the waters in this area.

We are likely to see a gradual rise in the adoption of security token offerings for natural resources as companies will soon see the results of the pilot projects and become more comfortable with this new form of fundraising.

NOTABLE PROJECTS

Project name	Country	Foundation date	Key facts
Sun Fund	USA	2019	— Launched Sun Fund security tokens backed by renewable energy assets — Raised **$123,220.00** and received funding from 325 investors
Ziyen Energy	USA	2019	— Aims to be the **first in the industry** to list oil assets on Ethereum — Launched an early round of funding, offering investors **100,000 ZiyenCoins** at $0.01 each and a minimum investment of $1000

Private equity

Tokenization facilitates investor participation in private equity transactions by enabling the acquisition of digital tokens that represent ownership in a company or asset.

STOs enhance the accessibility, appeal, and affordability of private equity for a broader range of investors through fractionalization and the sale of smaller units. As an illustration, a $10 million fund commitment can be divided into 1,000 tokens, each valued at $10,000.

NOTABLE PROJECTS

Project name	Country	Foundation date	Key facts
Enegra Group Ltd	Malaysia	2019	— The company's equity was tokenized using the T-REX-compliant EGX security token issued on Polygon — 85 million EGX tokens represent the ordinary shares of Enegra Group Ltd
Enercom AG	Liechtenstein	2019	— Issued 200,000 security tokens that represented equity shares of the company — **Enercom's whitepaper** is among the very few documents that explain in detail the risks associated with security tokens, as well as fully describing the terms and conditions and tax nuances for those looking to buy their tokens — Funds raised from the STO will be used to acquire one telecommunications project and one renewable energy project
DBS Bank	Singapore	2021	— Launched its **first STO** on the DBS Digital Exchange — The tokenization helped attract a wider range of investors by making the digital bond available for trading in board lots of 10,000 SGD, while the trading amounts of traditional wholesale bonds require multiples of SGD 250,000

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Covering the entire software development cycle, PixelPlex assists businesses across multiple domains, from FinTech and banking to eCommerce and supply chain.

PixelPlex has 150+ in-house experts and boasts 450+ successful projects delivered for startups, middle-size businesses, and enterprises. Having a strong focus on blockchain development, the PixelPlex team has delivered 80+ blockchain-based projects, including 2 unicorns.

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