4th ICO / STO Report

A Strategic Perspective

March 2019 Edition

In collaboration with:

strategy&

PwC

Crypto Valley
## Executive Summary

**ICO / STO Report March 2019 – Global Status-Quo**

### ICO / STO Facts & Figures
- In 2018, over **1'132 ICOs / STOs** have happened successfully, which is twice as much as in 2017 (total of 552)
- Total amount raised has nearly tripled to almost **USD 20bn** compared to 2017 (total of USD 7bn)
- However, **two unicorn ICOs** (EOS USD 4.1bn & Telegram USD 1.7bn) accounted for over 5.8bn of the 2018 volume
- In H2 2018, **numbers and volume of ICOs / STOs declined sharply**, reflecting both the shift from ICO to STO and the “crypto winter”

### STOs & Tokenization of Assets
- Security Token Offerings (STOs) are not fundamentally different from ICOs, but a **more mature and regulated form**, as the underlying tokens provide different financial rights, including dividends or shares
- STOs **combine many features of ICOs** (e.g. low entry barriers for investors) as well as **traditional Venture Capital / Private Equity fundraising characteristics** (e.g. regulations based on local security laws, incl. KYC / AML)
- **Tokenization of Assets** (i.e., process of converting an asset into a digital token on the blockchain system) is another trend and expands from commodity tokenization (e.g. gold, oil) to tokenization of intangible goods (e.g. music rights)

### Regulatory Environment
- Jurisdictions continue to pass specific **crypto assets and tokenization laws** across all continents
- As a global trend, jurisdictions **leverage existing security regulations as “STO framework”**, allowing management of cross-borderer complexity

### Infrastructure “Level Up”
- As STOs are becoming fully regulated, the corresponding **infrastructure must “level up”** – e.g., for trading and exchange, incumbent exchanges are entering the crypto space
- Moreover, **additional services will be demanded by market participants**, such as flexible custody solutions, market data services (MDS), reliable rating services & quality research as well as technical standards & APIs

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ICO / STO - A strategic perspective  
Source: Strategy& analysis  
March 2019
In 2018, over 1’132 ICOs / STOs have collected nearly USD 20bn, despite declining numbers in H2 2018

Definition & Characteristics

Initial Coin Offering (“ICO”, also token launch or token generation) is a term describing a limited period in which a company sells a predefined number of digital tokens (coins) to the public, in exchange for cryptocurrencies or fiat currencies.

Security Token Offering (“STO”) is a sale of tokens with features comparable to classic securities that are fully regulated and accepted within at least one jurisdiction. Prospectively, ICOs / STOs are increasingly an alternative to classic debt / capital-funding as performed today by Venture Capital / Private Equity firms and banks.

Monthly ICOs / STOs Numbers and Volume

<table>
<thead>
<tr>
<th>Year</th>
<th>Ø Duration/ICO (d)</th>
<th>Ø USD mn/ICO(1)</th>
<th>Total # ICOs</th>
<th>Total volume (USD mn)(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>41</td>
<td>0.4</td>
<td>2</td>
<td>0.8</td>
</tr>
<tr>
<td>2014</td>
<td>68</td>
<td>3.8</td>
<td>8</td>
<td>30.5</td>
</tr>
<tr>
<td>2015</td>
<td>32</td>
<td>1.0</td>
<td>10</td>
<td>9.9</td>
</tr>
<tr>
<td>2016</td>
<td>39</td>
<td>5.1</td>
<td>49</td>
<td>252</td>
</tr>
<tr>
<td>2017</td>
<td>29</td>
<td>12.8</td>
<td>552</td>
<td>7’043.3</td>
</tr>
<tr>
<td>2018</td>
<td>58</td>
<td>12.3(2)</td>
<td>1’132</td>
<td>19’689.3</td>
</tr>
<tr>
<td>All</td>
<td>47.5</td>
<td>12.1(2)</td>
<td>1’753</td>
<td>27’025.8</td>
</tr>
</tbody>
</table>

1) Calculations based on currency exchange rates on end date of ICO. As Ether and Bitcoin exchange rates are highly volatile, actual and current market capitalization of the companies today may differ significantly from figures shown in the table. ICO funding amount until 31.12.2018 considered. 2) Not considering Telegram and EOS.

Source: Strategy& analysis

March 2019 2
Since May 18, the first STO, tZERO, has entered the top 15 of the biggest ICOs / STOs

Overview: 15 Biggest ICOs / STOs Overall Since 2016

<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Total Raised Amount (USD mn)</th>
<th>End of ICO (month)</th>
<th>Focus</th>
<th>Industry</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EOS(2)</td>
<td>4'100</td>
<td>06.2018</td>
<td>Blockchain infrastructure for decentralized apps</td>
<td>BC infrastructure</td>
<td>Cayman Islands</td>
</tr>
<tr>
<td>2</td>
<td>Telegram</td>
<td>1'700</td>
<td>03.2018</td>
<td>Tokens to enhance messenger ecosystem</td>
<td>Social media</td>
<td>British Virgin Islands</td>
</tr>
<tr>
<td>3</td>
<td>TaTaTu</td>
<td>575</td>
<td>06.2018</td>
<td>Social entertainment on the Blockchain</td>
<td>Entertainment</td>
<td>Cayman Islands</td>
</tr>
<tr>
<td>4</td>
<td>Dragon</td>
<td>320</td>
<td>03.2018</td>
<td>Decentralized currency for casinos</td>
<td>Gambling</td>
<td>British Virgin Islands</td>
</tr>
<tr>
<td>5</td>
<td>Huobi Token</td>
<td>300</td>
<td>02.2018</td>
<td>Coin for South Korean crypto exchange</td>
<td>FinTech</td>
<td>Singapore</td>
</tr>
<tr>
<td>6</td>
<td>HDAC</td>
<td>258</td>
<td>12.2017</td>
<td>IOT platform backed by Hyundai BS&amp;C</td>
<td>Internet of things</td>
<td>Switzerland</td>
</tr>
<tr>
<td>7</td>
<td>Filecoin</td>
<td>257</td>
<td>09.2017</td>
<td>Decentralized market for data storage</td>
<td>Data storage</td>
<td>USA</td>
</tr>
<tr>
<td>8</td>
<td>Tezos</td>
<td>232</td>
<td>07.2017</td>
<td>Blockchain infrastructure for decentralized apps</td>
<td>BC infrastructure</td>
<td>Switzerland</td>
</tr>
<tr>
<td>9</td>
<td>Sirin Labs</td>
<td>158</td>
<td>12.2017</td>
<td>Secure open source consumer electronics</td>
<td>Consumer electronics</td>
<td>Switzerland</td>
</tr>
<tr>
<td>10</td>
<td>Bancor</td>
<td>153</td>
<td>06.2017</td>
<td>Enabling direct conversion between tokens</td>
<td>FinTech</td>
<td>Switzerland</td>
</tr>
<tr>
<td>11</td>
<td>Bankera</td>
<td>151</td>
<td>03.2018</td>
<td>Banking for the Blockchain era</td>
<td>FinTech</td>
<td>Lithuania</td>
</tr>
<tr>
<td>12</td>
<td>Polkadot</td>
<td>145</td>
<td>10.2017</td>
<td>Interoperability protocol across multiple Blockchains</td>
<td>BC infrastructure</td>
<td>Switzerland</td>
</tr>
<tr>
<td>13</td>
<td>The DAO</td>
<td>143</td>
<td>05.2016</td>
<td>Decentralized autonomous organization</td>
<td>Venture Capital</td>
<td>Switzerland</td>
</tr>
<tr>
<td>14</td>
<td>Polymath</td>
<td>139</td>
<td>01.2018</td>
<td>Security token platform</td>
<td>FinTech</td>
<td>Barbados</td>
</tr>
<tr>
<td>15</td>
<td>tZERO</td>
<td>134</td>
<td>08.2018</td>
<td>Security token trading platform</td>
<td>FinTech</td>
<td>USA</td>
</tr>
</tbody>
</table>

1) Calculations based on currency exchange rates on end date of ICO. As Ether and Bitcoin exchange rates are highly volatile, actual and current market capitalization of the companies today may differ significantly from figures shown in the table. ICO funding amount until 31.12.2018 considered. 2) EOS conducted a two-phased ICO. In the 1st phase (5 days in June 2017), USD 185mn were raised. The second phase lasted 350 days ending in June 2018.

Source: Strategy& analysis

March 2019

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Jurisdictions around the globe continue to pass crypto assets and tokenization laws

PwC Global ICO Compass

NOT EXHAUSTIVE

USA

In Wyoming, several bills about crypto assets have been passed

• One bill recognizes digital assets as property
• Another bill lays the legal foundation to issue securities in a tokenized form

Bahrain

Central Bank has issued crypto assets rules – the framework covers various areas from licensing to governance

Thailand

Legislator allowed issuance of tokenized securities on the Blockchain - bonds and stocks could be issued and traded on the Blockchain in the future

Luxembourg

Parliament passed a law which let Blockchain transactions receive the same legal status as traditional transactions

For more details please see:
PwC Global ICO Regulatory Compass: www.pwc.ch/ico
Security Token Offerings (STOs) are gaining in popularity, marking a new era of fully regulated securities—ICOs / STOs

**Security Token Offerings (STOs)**

Security tokens are asset-backed financial notes and are considered as legally binding blockchain-based investment contracts. They may provide various different financial rights to investors including dividends, shares and other financial instruments, depending on design.

In the course of a Security Token Offering (STO) a company issues security tokens to investors. Thus, ICOs with a security token as issued token can be classified as STOs. However, most ICOs issued utility tokens or currencies and can't be classified as STO.

<table>
<thead>
<tr>
<th><strong>Initial Coin Offering (ICO)</strong> with utility tokens or cryptocurrencies</th>
<th><strong>Security Token Offering (STO)</strong> with security tokens</th>
<th><strong>Traditional Fundraising</strong> with shares (e.g. VC / PE financing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility token; cryptocurrency (public tradable)</td>
<td>Security token (public tradable)</td>
<td>Private company share (not public tradable)</td>
</tr>
<tr>
<td><strong>Investor participation</strong></td>
<td>Global participation possible, low entry barriers (e.g. fractional ownership of tokens)</td>
<td>Large participation possible, low entry barriers (e.g. fractional ownership of tokens)</td>
</tr>
<tr>
<td><strong>Capital formation process</strong></td>
<td>High cost efficiency (e.g. due to automated processes)</td>
<td>Better cost efficiency than traditional securities issuance</td>
</tr>
<tr>
<td><strong>Regulation</strong></td>
<td>Regulation still unclear in many jurisdictions</td>
<td>Regulations based on local security laws (incl. KYC / AML)</td>
</tr>
<tr>
<td><strong>Token application</strong></td>
<td>Various services &amp; spending opportunities</td>
<td>Proof of ownership &amp; application of corresponding features &amp; rights</td>
</tr>
<tr>
<td><strong>Investor rights</strong></td>
<td>No associated investor rights</td>
<td>Legally binding investor rights (e.g. ownership rights, voting rights, dividend rights)</td>
</tr>
</tbody>
</table>

ICO / STO - A strategic perspective

Source: Strategy& analysis

March 2019
Jurisdictions leverage existing security regulations as "STO framework", allowing management of x-boarder complexity

The Rise of Security Token Offerings (STOs)

STO Overview

Exemplary STO Jurisdictions

- In 2017, the concept of STOs was pioneered as 2 STOs raised around USD 22mn in total
- In 2018, STO figures grew exponentially to 28 STOs and USD 442mn in volume
- In 2019 & 2020, further growth is expected, as adaption of funding method will increase
- The biggest STO so far was tZERO (subsidiary of eCommerce giant overstock.com), which managed to raise USD 134mn in Q3 2018

- **Switzerland**
  - Regulator (FINMA) distinguishes between asset tokens, utility tokens and payment tokens
  - Asset token based ICOs can be considered as STOs
- **USA**
  - Regulator (SEC) generally regards tokens distributed via ICOs as securities, with the exception of cryptocurrencies
  - Howey Test is applied to determine securities (very broad application)
  - Additional state regulation supporting STOs (e.g. Wyoming)
- **Liechtenstein**
  - Liechtenstein launches "Blockchain Law" in Q1 2019, which will serve as a basis for token based fundraising
  - Regulator closely interacts with companies planning an STO
- **Germany**
  - Regulator (BaFin) regards cryptocurrencies in general as financial instruments
  - Regulator approved first German STO in Q1 2019
- **Estonia**
  - Regulator (EFSA) categorizes tokens as follows: 1) donations, 2) utility tokens, 3) security tokens
  - Token can be defined as security token, if it gives the investors rights in the issuer company or is tied to profits

...several additional jurisdictions are currently working on STO regulations or have laws covering STOs

Note: for further information see also G. Dobraz-Saldapenna & U. Kiebeck, Initial Coin Offering - Legal & Regulatory Challenges of Crossing the Borders, in: Journal of Alternative Investments, Spring 2019
Asset tokenization, i.e., the conversion of real-world assets to the Blockchain, is a dominant trend in 2019

**Tokenization of Assets**

**Asset tokens** are Blockchain-based tokens backed by a real world asset (tangible and non-tangible) and can be classified as security tokens.

**Asset tokenization** describes the process of converting assets into digital tokens on a blockchain.

### Application Examples

- **Fiat currency**
  - e.g. USD, CHF, EUR

- **Commodity**
  - e.g. gold, silver, oil

- **Real estate**
  - e.g. RE fund, single property

- **Art & collectables**
  - e.g. paintings, old timer

- **Intangible goods**
  - e.g. ownership rights for music

### Benefits

- **Fractional ownership**: New customer groups get access to previously unattainable asset classes for investments

- **Increased liquidity of assets**: Illiquid assets can now be traded and transferred 24/7 all over the globe

- **Lower costs**: As intermediaries (e.g. banks, brokers, exchanges) may be removed from the value chain, related costs are lower or even disappear

- **Faster settlement**: Dramatic increase of clearing & settlement speed thanks to Blockchain technology

- **Programmability**: Smart Contracts enable an efficient management of rights (e.g. voting rights) and corporate actions over the Blockchain

- **Immutable proof of ownership**: Blockchain secures traceability of every transaction and provides a “single point of truth”
For STOs to grow further, the emerging crypto finance market infrastructure needs to develop, professionalize & “level up”

Blueprint Crypto Finance Market Infrastructure

Key elements of critical market infrastructure are not yet at required level of quality. The following solutions must mature for a more enhanced STO infrastructure:

- **STO exchanges**: Regulated exchange platforms (for equity trading) have to move into the crypto space or crypto exchanges have to reach regulatory approval to manage STOs and cooperate with the competent authorities.

- **Flexible custody solutions**: Global 24/7 access combined with highest security standards will come in high demand.

- **Market data services (MDS)**: Professionally aggregated global real-time services for crypto assets market data will become crucial for further development.

- **Reliable ratings & quality research**: The area of reliable crypto research and ratings is still nascent, but will have to mature quickly with the trend to shift ICOs to STOs.

- **Technical standards & APIs**: Industry standards need to emerge to interlink infrastructure building blocks, incl. APIs, ontologies, legal entity standards, etc.

### Degree of Institutionalization / Maturity
- High
- Medium
- Low / “White Spot”

### See also 2019 Strategy& Viewpoint:
"Crypto Finance – From Hype to a New Asset Class"
We offer a One Firm, Strategy to Execution Client Experience and Offering – across the globe and in all relevant markets

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