5th ICO / STO Report

A Strategic Perspective

Summer 2019 Edition

In collaboration with:

Crypto Valley

Executive Summary

ICO / STO Report Summer 2019 Edition – Global Status-Quo

Overall positive Development of Global Crypto Markets

- After an overall weak 2018 for the crypto market **("Crypto Winter")**, the **sideways trend continued** until **beginning of Feb 2019**, resulting in a **low point of ca. USD 110 bn total market capitalization by 6th Feb 2019**
- Supported by the **progressive clarification of regulatory landscape**[1] paired with **renewed interest in cryptocurrencies** by **institutional investors** and **established corporations**[2], the **crypto market has been** significantly **recovering** until end of May (total market cap: ca. USD 270 bn), indicating an **end of the "Crypto Winter"**
- **Bitcoin**, the world's largest digital asset in terms of market cap, **regained** more than **120%** throughout **first five months in 2019** reaching a **price** of **ca. USD 8'590 by 31th May 2019**

ICO / STO / IEO Facts & Figures

- Throughout first five months in 2019, more than **250 token offerings** have been **successfully completed**, managing to **raise** in total ca. **USD 3.3 bn**
- **Largest conducted crypto offerings** were **Bitfinex** (USD 1 bn) and **GCBIB** (USD 143 mn), jointly accounting **35%** of **total raised funding volume** throughout the first five months of this year

Emergence of Initial Exchange Offerings

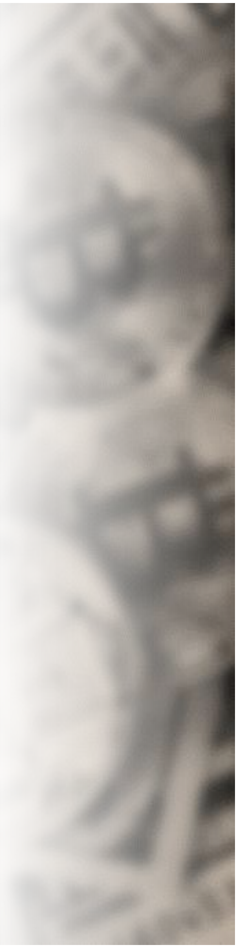
- **Initial Exchange Offering ("IEO")** emerged as a new **format for fundraising** in the **Crypto Finance ecosystem**, by which an **ICO / STO** is basically conducted on one or multiple **platforms of crypto exchanges**
- **Concept of IEOs** was initially introduced in **2017**, but has not been able to **significantly establish** itself until earlier this year
- Since then, **development of this new crypto fundraising method** has been strongly **accelerating** in terms of completed offerings and funding volume

Underlying Infrastructure Trends

- The **innovation of IEO** emphasizes a **higher degree of institutionalization** of large **crypto exchanges** around the world as **cornerstones** of the **global Crypto Finance infrastructure** – and may also be seen as a **response to established exchanges moving into crypto**
- In this context, **crypto exchanges** continue to **establish** and **use recovery funds** focusing on **hedging against potential hacks** (e.g. Binance's Secure Asset Fund for Users (SAFU) covering hacking losses amounting to USD 41mn in May 2019, or the response by Bitfinex in a similar case)

Progressing Regulatory Framework

- Globally, **regulators** and **legislators** continue to **further sharpen** and **advance** the overall **regulatory framework** of the Crypto Finance ecosystem
- In June 2019, **Financial Action Task Force (FATF) introduced new comprehensive KYC/AML standards** for **crypto service companies** (incl. crypto exchanges and wallet providers) – **G20 group of nations** has already assured their **statutory adaption**



1) for instance: initiation of digital asset-specific jurisdiction consultations in Swiss, the UK and France.
2) for instance: Facebook (Libra) and JPMorgan Chase announced plans to create new digital currencies, as did several Central Banks around the world
Source: Strategy& analysis

In first five months 2019, over 250 token offerings have collected a total of USD 3.3bn

Definition & Characteristics

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

Security Token Offering (“**STO**”) is a sale of tokens with features comparable to normal securities, i.e., **fully regulated and approved** within at least one jurisdiction.

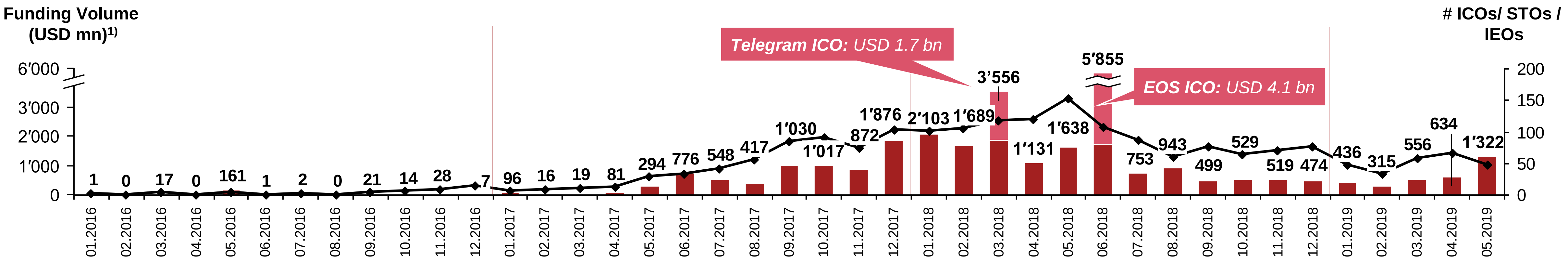
Initial Exchange Offering (“**IEO**”) is an ICO (or STO), which is exclusively conducted on the platform of a cryptocurrency exchange. IEOs are administered by the crypto exchange on behalf of the issuing company, which seeks to raise funds with its newly issued tokens.

Prospectively, ICOs / STOs / IEOs are **alternatives** to classic debt and capital-funding as performed today by Venture Capital, Private Equity firms and banks.

Token Offering Development

Year	Ø Duration (d)	Ø USD mn[1)]	Total #	Total volume (USD mn)[1)]
2013	41	0.4	2	0.8
2014	68	3.8	8	30.5
2015	32	1.0	10	9.9
2016	39	5.1	49	252
2017	29	12.8	552	7’043.3
2018	58[2)]	12.3[2)]	1’132	19’689.3
2019 YTD[3)]	84*	13.1*	250*	3’263.0*
All	**50**	**6.9**	**2’003**	**30’288.8**

Monthly Numbers and Volume



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 31.05.2019 considered. 2) Not considering Telegram and EOS. 3) until May 2019. *YTD figures
Source: Strategy& analysis

In 2019, Bitfinex and GCBIB have entered the top 15 of the biggest token offerings

Overview: 15 biggest token offerings overall since 2016

#	Name		Total raised amount (USD mn)[1)]	End of offering (month)	Focus	Industry	Country
1	**EOS**[2)]		4’100	06.2018	Blockchain infrastructure for decentralized apps	BC infrastructure	Cayman Islands
2	**Telegram**		1’700	03.2018	Tokens to enhance messenger ecosystem	Social media	British Virgin Islands
3	**Bitfinex**[3)]	NEW	1’000	05.2019	Tokens for fee discounts in the iFinex ecosystem	FinTech	Hong Kong
4	**TaTaTu**		575	06.2018	Social entertainment on the Blockchain	Entertainment	Cayman Islands
5	**Dragon**		320	03.2018	Decentralized currency for casinos	Gambling	British Virgin Islands
6	**Huobi Token**		300	02.2018	Token/ Coin for South Korean crypto exchange	FinTech	Singapore
7	**HDAC**		258	12.2017	IOT platform backed by Hyundai BS&C	Internet of things	Switzerland
8	**Filecoin**		257	09.2017	Decentralized market for data storage	Data storage	USA
9	**Tezos**		232	07.2017	Blockchain infrastructure for decentralized apps	BC infrastructure	Switzerland
10	**Sirin Labs**		158	12.2017	Secure open source consumer electronics	Consumer electronics	Switzerland
11	**Bancor**		153	06.2017	Enabling direct conversion between tokens	FinTech	Switzerland
12	**Bankera**		151	03.2018	Banking for the Blockchain era	FinTech	Lithuania
13	**Polkadot**		145	10.2017	Interoperability protocol across multiple Blockchains	BC infrastructure	Switzerland
14	**GCBIB**	NEW	143	01.2019	Multi-asset digital wallet	FinTech	United Arab Emirates
15	**The DAO**	(not live anymore)	143	05.2016	Decentralized autonomous organization	Venture Capital	Switzerland

not live anymore

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 31.05.2019 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. 3) no official confirmation of the raised funding amount yet published.
Source: Strategy& analysis

The three Blockchain-based crowdfunding instruments differ in a number of ways

Funding instruments: crypto fundraising vs. traditional fundraising

	Initial Coin Offering (ICO)	Initial Exchange Offering (IEO)	Security Token Offering (STO)	Traditional Fundraising (VC/PE and IPOs)
	Public utility token; cryptocurrency offerings – *before 2018 most token offerings were ICOs*	Launch of any form of token/ cryptocurrency on specific exchange – *popular mainly as of 2019*	Launch of security tokens (publicly tradable) typically linked to specific jurisdictions – *popular as of 2018*	VC/PE: Private share transaction IPO: Formal share issuance on specific exchange
Investor participation	Global participation possible, low entry barriers (e.g. fractional ownership of tokens)	Global participation potentially possible, but depending on exchange governance, reach and user base	Large participation possible, low entry barriers (e.g. fractional ownership)	Access only for qualified investors; public participation in IPOs via banks and Brokerage firms
Capital formation process	High cost efficiency (e.g. due to automated processes)	Cost efficient and scalable as exchange can leverage established investor relationships & data	Much better cost efficiency vs. traditional securities issuance	Complex securities regulation with high associated regulatory compliance cost
Regulation	Regulation still unclear in many jurisdictions	Regulation based on local and international rules (incl. KYC/AML) applicable for exchange	Regulations based on local security laws (incl. KYC/AML), jurisdiction of STO company relevant	Full regulatory compliance based on local and international security laws (incl. KYC/AML, prospectus, etc.)
Token application & liquidity	Various services & usage opportunities depending on typo of token; liquidity based on secondary markets	Usage may vary depending on token type issued; liquidity in primary & secondary markets	Full proof of ownership & application of corresponding features & rights; liquidity provided by STO-enabled exchanges	Share ownership via established and regulated custodian network (banks, notaries, etc.)
Investor rights	No associated investor rights, however, community may enforce investor rights	Legally binding investor rights (e.g. ownership rights, voting rights, dividend rights) only for security tokens	Legally binding investor rights (e.g. ownership rights, voting rights, dividend rights) guaranteed by instrument type	Legally binding investor rights (e.g. ownership rights, voting rights, dividend rights); enforced by regulators
Vetting / Due Diligence	If done at all, then by broader community around ICO company	Done in full responsibility by listing exchange; in case of STO local regulator(s) will also scrutinize	Vetting provided by relevant regulators and typically 3rd parties (e.g. audit firm)	Full fledged due diligence process part of VC/PE or IPO process, supported by 3rd party firms (e.g. auditors, banks)
	Token based funding instrument in its "raw" form	**ICO on a crypto exchange**	**Stronger regulated form of ICO & tokens qualify as securities**	**Traditional, fully regulated funding based on shares**

→ *deep-dive on subsequent pages*

Source: Strategy& analysis

Initial Exchange Offerings are ICOs (or STOs) exclusively launched on a cryptocurrency exchange

“IEOs in a nutshell”

Initial Exchange Offering (IEO): ICO exclusively launched on a cryptocurrency exchange. If an IEO has a security character, it can also be considered as a STO.

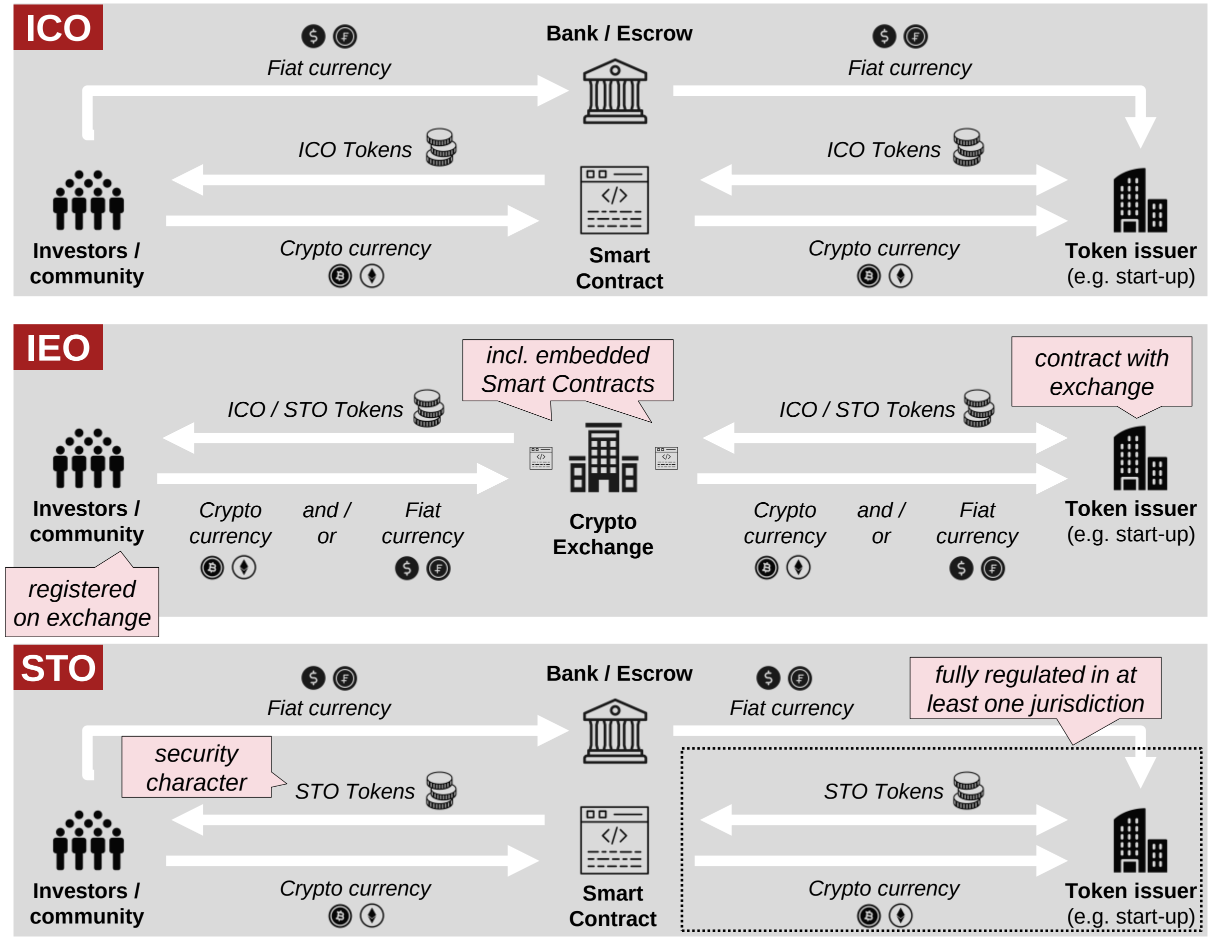
Key Characteristics

Potential quality mark: *Reputable large global exchanges can provide IEOs with a “trust stamp”, attracting more, already on-boarded investors*

Higher cybersecurity: *Established exchanges can provide higher security standards (e.g. 2FA, key management) than new start-ups; however, cybersecurity risks still remain in any case*

Increased liquidity: *As tokens get automatically listed on the conducting exchange after the IEO, this leads ideally to increased liquidity after launch*

Limited accessibility: *Only investors fully registered and on-boarded on the exchange can invest, and local regulations apply – secondary markets (other exchanges, P2P) may develop over time*



Source: Strategy& analysis

IEO, the new vehicle for Blockchain-based funding, offers a convenient alternative for coin and token launches

Impact analysis of IEO

Token issuing company

- Leverage an established platform (exchange) for marketing activities and directly addressing target audience (crypto-affine investors)
- Delegate management of funding process, incl. cybersecurity and KYC/AML, high dependency on exchange for success
- Leverage exchange's brand to "certify" legitimacy / potential of project
- Focus on core capabilities, e.g. technology development, product roll-out

Outsource funding process

Investors

- Go through KYC/AML process only once on their preferred exchange instead of multiple KYC processes for each ICO/STO
- Trust more in legitimacy of exchange and its vetting activities as an intermediary than single token issuing companies
- Can trade tokens directly once IEO is over with (ideally) higher liquidity, which may attract a broader range of investors

Improved UX & trust

Exchanges

- Expand own role in ecosystem as they endorse and support good projects/ startups by listing them
- Add new revenue source with only few additional marginal costs, as platform and user base can be leveraged
- Advance from pure trading / exchange business into more complex business models, e.g., issuing of securities
- Engage into more active dialogue with relevant regulators & competent authorities

Expand own role in ecosystem & broaden revenue sources

Regulators

- Focus of regulatory activities on single centralized exchanges, enabling quick establishment and control of laws and regulations
- Can create stronger trust for investors and community by approving certain exchange platforms and their processes for token offerings
- Faster shift and transition from unregulated "grey zones" to clear regulation in crypto finance

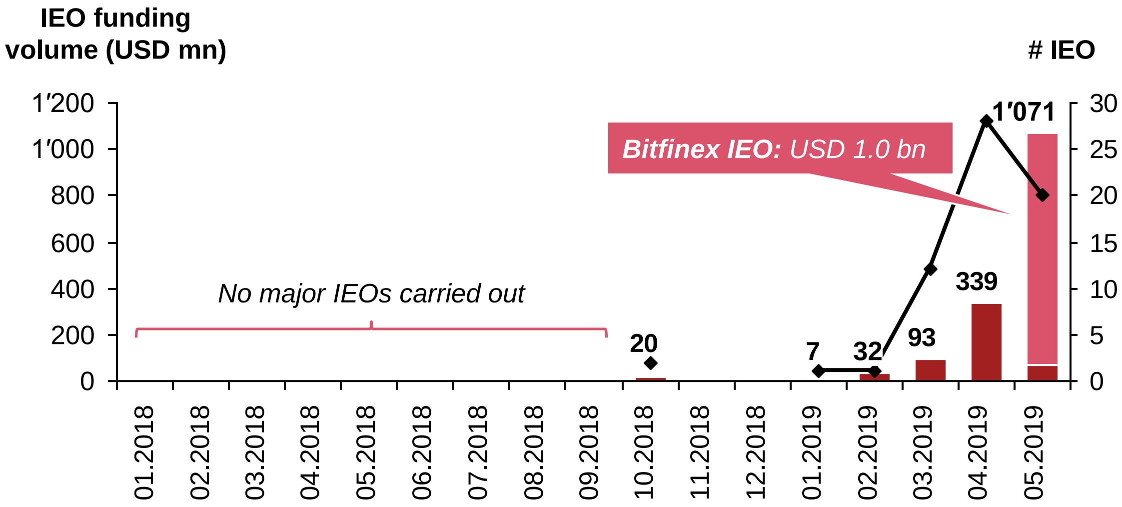
Better and consistent regulation

Source: Strategy& analysis

Since the beginning of 2019, adoption of IEOs has been strongly accelerating with >USD 1 bn raised

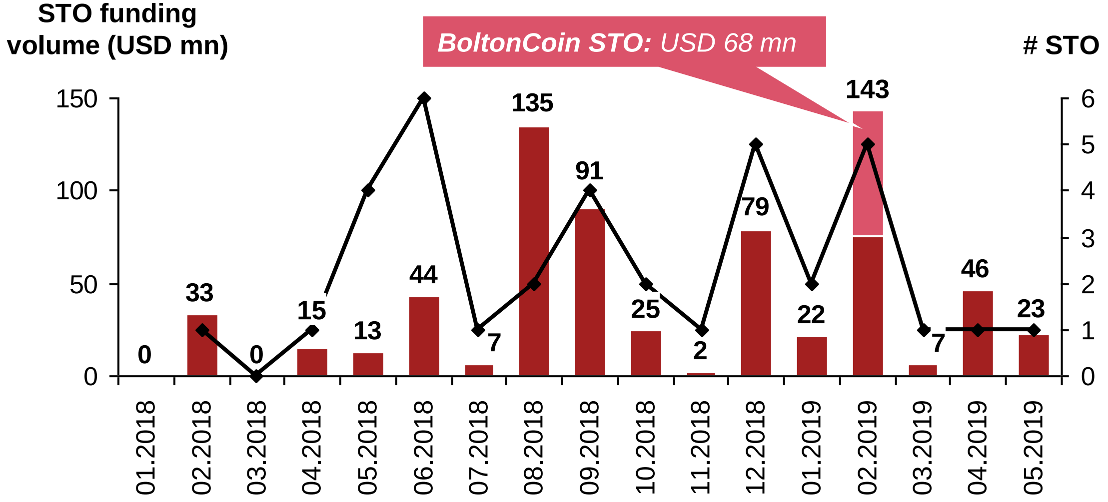
Development of STOs and IEOs

Initial Exchange Offering (IEO)



- **First IEOs** already took place in **2017** (e.g. Bread, Gifto) - nonetheless, this fundraising method did not significantly capture market share until **early 2019**
- Binance pioneered this crowdfunding method by **establishing the Binance Launchpad**, other crypto exchanges also **developed their own IEO platforms** (e.g. Huobi Prime, Probit Launchpad)
- Since the **beginning of 2019**, the development of **IEO** (in terms of completed offerings and aggregate funding volume) **strongly accelerated**

Security Token Offering (STO)



- After launch of **first STOs in 2017**, **figures grew strongly** to approximately **USD 442mn** in **total funding volume** by end of 2018
- From Jan until May 2019, **positive development** of **STOs continued** and is expected to **carry on throughout 2019 and 2020 –** assuming regulation of STOs strengthens and more large, regulated exchanges support STOs
- In 2019, **biggest launched STO** was **BoltonCoin**, raising approximately **USD 68mn**

Source: Strategy& analysis

Cybersecurity, key custody, KYC/AML and capital requirements are key themes in today's Crypto Finance ecosystem

Relevant Topics in Crypto Finance

NOT EXHAUSTIVE

Cybersecurity

- **Risk** to **lose money** or **confidential data** during ICO process – aggravated through existing system vulnerabilities and high complexity
- **Vulnerabilities** may exist in the underlying **smart contract** or **web / mobile applications** allowing hackers to attack either **ICO company** or **investors**
- **Recent cases** of **large losses** caused by cyber attacks (e.g. Binance lost ca. USD 40 mn – user funds were recovered)

KYC/AML regulation

- Along with **progressive institutionalization** of the **Crypto Finance sector**, the **regulatory framework** continues to be **considerably tightened and further developed** around the world
- Amongst others, in **June 2019**, the **Financial Action Task Force (FATF) imposed** new strict **global KYC/AML standards** for **crypto currency companies** (i.e. crypto exchanges and wallet providers)[1)]

Key custody

- In the light of increasing **fraud** and **cyber attacks**, but also people simply losing access to their funds, **key custody solutions** gain more and more **attention** and **relevance**
- **Central banks, banks, regulators** and **start-ups** are **joining forces** to **build secure, trustworthy** and **convenient solutions** around the world
- **Key ceremonies** are becoming overly **symbolized events** with high attention by investors and media

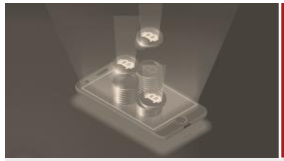
Capital requirements

- **Current discussions** about **capital requirements ongoing** across the globe
- **Potential higher capital requirements expected** for **on-balance crypto currencies,** i.e. kept in own trading or banking book
- **Finalized and committed global standards not yet available,** which may lead to regulatory arbitrate and uneven level-playingfield in the interim

1) The new FATF regulations demand crypto exchanges and other crypto service providers, besides verifying and keeping records of their users' identities, to pass customer information to each other in the case of fund transfers.
Source: Strategy& analysis

Recent events highlight the need for improved cybersecurity in Blockchain in general, and for ICO / STOs in particular

Security measures to mitigate risks around token offerings



Crypto custody
(the "wallet")

Public Blockchains promise to enable everybody to **"be their own bank"**, however proper secure storage of crypto assets is **complex** and requires carefull balance of trade-offs between **convenience and security**

Crypto custody solutions **protect the private keys** for crypto assets, initiating transactions and smart contracts. None of the solutions available today are **easy to use** and **satisfy** the **highest audit standards**

Providers of **crypto custody solutions** and **Blockchain wallets** need to comprehensively answer how they:

- ❑ Securely generate & store the private key to prevent it from being stolen
- ❑ Ensure sufficient randomness to prevent the private key from being guessed
- ❑ Keep secure back-ups and ensure business continuity to avoid loss of the key, resulting in loss of access to the crypto assets
- ❑ Prevent unauthorized people from initiating transactions

We observe a **move** across the **industry** to increase security with new technologies such as **threshold signatures**, and to **increase** the **trust** with **SOC 2 & ISAE 3402** control reporting audits**.**

"Binance hack puts the all-time total sum stolen from cryptocurrency exchanges over USD 1.35 bn; 59% coming from 2018"
(9th May 2019)

Smart Contracts
("DApps")

Smart contracts handle **fundraising** on the Blockchain, **issuance** and on-going management of coins/ tokens, & **decentralized applications** (dapps).

As a standard, developers of smart contracts should:

- ❑ Build **automated code scans** into their continuous integration pipeline [1)]
- ❑ Commission **independent code reviews** by skilled researchers and code auditors for major releases
- ❑ Implement formalized **software development & testing controls**, including sufficient **segregation of duties** and **sign-off** before going live

More and more Blockchains support **formal verification** in their smart contract platform natively, e.g. Tezos. For Solidity on Ethereum, formal verification needs to be part of the **auditors toolkit** when they assess the smart contract against the specification.

"SpankChain loses USD 40'000 in hack due to Smart Contract bug"
(9th October 2018)

Blockchain Technology

Consensus algorithms, **replication** and **cryptographic** routines are at the heart of Blockchain technologies, and hacks and **mistakes affect everybody** on the network.

When selecting a Blockchain to issue the ICO / STO and to run a future product or service, project teams need to focus on:

- ❑ Assess **robustness of consensus algorithm** and its implementation in the source code
- ❑ Monitor & respond to changes in the **resilience against double spend attacks**
- ❑ Insist on thorough **software development controls** including sufficient **peer reviews** of critical parts of the code

Having both **real time monitoring** and **compliance feeds** from Blockchain networks is increasingly becoming a requirement for participation in the ecosystem.

"Coinbase: Ethereum classic double spending involved more than USD 1.1 mn in Crypto"
(8th January 2019)

1) E.g., https://securify.ch/
Source: PwC Blockchain Risk Assurance Team

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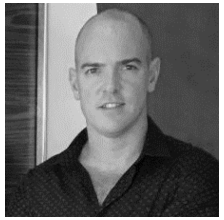

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- **Technology Development**

The authors would also like to thank Pierre-Edouard Wahl, Jonas Heydasch, Eva Oberholzer and Raphael Ebeling for their important contributions towards this report.