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# **Token Sales: an integrative review of the success and contingency factors**

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### **Abstract**

The purpose of this research is to introduce some fundamental understanding of the blockchain technology and delineate the new landscape of the methods of fundraising arising from this innovative technology, mainly for startup projects. This study presents the vital aspects and differences of an Initial Coin Offering (ICO), Security Token Offering (STO) and an Initial Exchange Offering (IEO), and common success and contingency factors found in the literature to support the entrepreneur to guarantee the optimal outcome for raising funds for a project.

*Keywords:* Token Sales, Initial Coin Offerings, Entrepreneurial Finance, Blockchain

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## Resumo

O objetivo desta pesquisa é apresentar um entendimento fundamental da tecnologia blockchain e delinear o novo cenário dos métodos de captação de recursos decorrentes dessa tecnologia inovadora, principalmente para projetos de startups. Este estudo apresenta os aspectos vitais e as diferenças de uma *Initial Coin Offering* (ICO), *Security Token Offering* (STO) e *Initial Exchange Offering* (IEO) e fatores comuns de sucesso e contingência encontrados na literatura para apoiar o empreendedor a garantir o melhor resultado para arrecadar fundos para um projeto.

*Palavras-chave:* Token Sales, Initial Coin Offerings, Entrepreneurial Finance, Blockchain.

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**List of Abbreviations**

IS - Information System

ALM - Anti-Laundering Money

DLT - Distributed Ledger Technology

EF - Entrepreneurial Finance

EVM - Ethereum Virtual Machine

ICO - Initial Coin Offering

IEO - Initial Exchange Offering

IPO - Initial Public Offerings

KYC - Know Your Customer

POS - Proof Of Stake

POW - Proof Of Work

STO - Security Token Offering

TS - Token Sales

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# Chapter 1

## Introduction

The way money is used changed dramatically throughout the past century, as it became available in digital form, allowing the transfer of value over computer networks, e.g. use of debit and credit cards. Such payment methods are based on centralised banking networks that enable customers to make financial transactions.

Blockchain is a new technology that uses code to verify transactions via a decentralised peer-to-peer network. Unlike traditional currency transfer systems, usually slow and expensive due to third-party intermediation, this technology does not require such an intermediary agent.

People often associate blockchain exclusively with Bitcoin, when in fact the technology goes way beyond this particular cryptocurrency, and it is predicted by many to have a revolutionary impact in the world soon.

The original design of blockchain has inspired the creation of new cryptocurrencies and alternative funding mechanisms, threatening the *status quo* and, in doing so, gaining much attention.

Entrepreneurs need some basic principles which serve as guidelines for their success. Two of the most important of such principles are learning from experience and that the process of beginning a venture is an educational experience by itself. It is important to apply and adapt fundamental financial principles and basic theories for planning, launching, developing, operating, growing, maturing, valuing and harvesting entrepreneurial business projects.

Funding new ventures involve many stakeholders and, as such, it is essential to understand these new entrepreneurial financing processes, as well as the success factors of other ventures and the reasons that led investors to adopt them.

New funding mechanisms have emerged as an alternative to raise funds for companies, often adopted by startups to overcome the rigorous and regulated capital-raising process required by traditional means. Such mechanisms are based on the new Token Economy. They are simply identified as Token Sales (a term adopted in this work) or its variations, Initial Coin Offering (ICO), Security Token Offering (STO) and Initial Exchange

Offering (IEO). Utilising such mechanisms, on the one hand, a company issues a digital token and, on the other hand, enthusiasts invest in a new project or venture, driven by a prospective utility or return on their investments based on future valuation of the digital token.

Token Sales (TS) boomed from early 2017 until 2019, albeit the scepticism from some, demonstrating that tokenisation has the ability to replace or significantly affect the concept of currency as all know. Recently, giant technology companies and multinational financial organisations have shown a keen interest in creating their own tokens to enable and facilitate international trade.

This research aims to (i) analyse the existing literature regarding token sales; (ii) study different research streams and how they evolved; and (iii) evaluate empirically proven success and contingency factors related to managing Token Sales during the entrepreneurial journey. The main motivation for this study is to consolidate knowledge about this new phenomenon, as there is a disperse literature, and to present relevant elements for a successful Token Sales operation.

In order to support these purposes, this dissertation is structured as follows:

Chapter 1 introduces the research objectives and motivations;

Chapter 2 outlines the methodology used for this integrative literature review;

Chapter 3 is devoted entirely to elaborate on the definitions and concepts of blockchain technology.

Chapter 4 presents the literature review about entrepreneurial finance, fundraising mechanisms, Token Sales and TS market landscape;

Chapter 5 will identify and highlight the different research streams, the number of contributions for each stream and their evolution over time;

Chapter 6 reviews and discuss all success and contingency factors that have empirically been proven on the research topic; and

Chapter 7 presents the conclusions of the study, contributions, difficulties and future paths.

## Chapter 2

# Methodology

This section explains and justifies the research methodology, presents the structure of the approach adopted for this study and the methods followed in conducting the review.

### 2.1. Conceptual Structure

Research, in general, may rely on various paradigms, such as the behavioural paradigm, which is more focused on the sphere of natural science, the design science paradigm, which proves to the world by inventing or developing new concepts, products and processes in developing innovation. Hevner et al. (2004) developed an Information Systems (IS) Research Framework (see Fig.1), which is very useful to take some of the rigorous academic approaches to do design science research and apply it to the field of innovation and entrepreneurship. Design Science Research is the creation of artefacts to solve real-world problems, especially in Information Systems, as it presents tremendous inherent flexibility to adapt and change artefacts and processes.

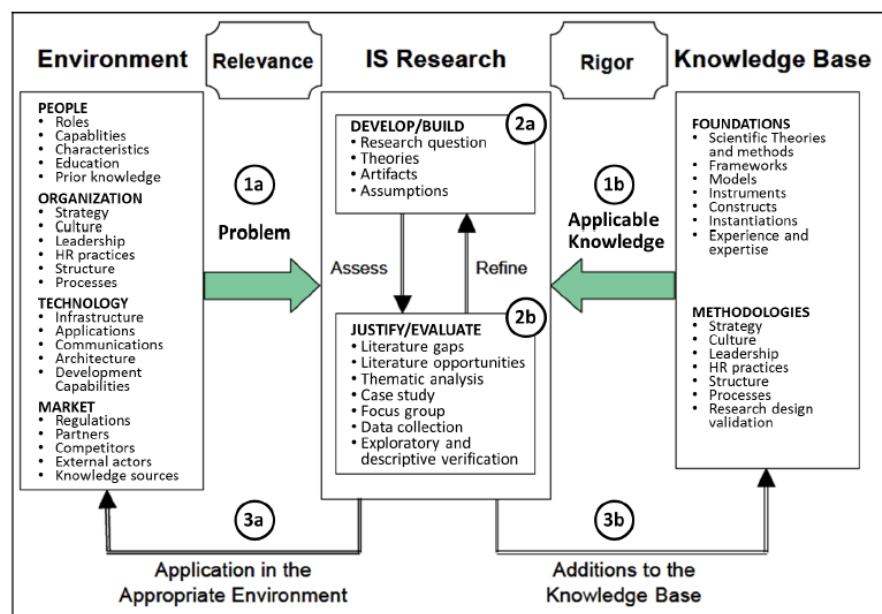


Figure 1 - Adapted IS Research Framework (Hevner et al., 2004)

The IS Research model shown above considers the opportunities and the problems existing in a given business environment while also monitoring the implications of the proposed solutions and testing to the existing knowledge base. This methodology encompasses building, assessing, evaluating and refining solutions (design cycle) until at least one solution is ready to yield two contributions: satisfaction of business needs and, at the same time, additions to the knowledge base.

This review method can contribute to the novel of the artefact as knowledge. As prescriptive research develops, there are different levels of contribution depending on where the maturity of the project is situated, until reaching a more descriptive knowledge.

With that said, the IS Research seems to be an appropriate association with Integrative Literature Reviews to assist in maintaining a current knowledge base in a particular research area (Cooper, 1998). Several terms are closely associated with the integrative review, including literature review, systematic review and meta-analysis (Russell, 2005). This dissertation follows a meta-analysis as it is "a technique for quantitatively combining and thus integrating the results of multiple studies on a given topic" (Russell, 2005).

The purpose of this study is not to generate new concepts, but rather help to understand the research field, specific topics and methodologies used, in order to identify research gaps. Thus, the IS Research framework developed by Hevner et al. (2004) acts as a guiding reference to construct a map of the literature and the map the contingency and success factors for Token Sales.

## **2.2. Research Design**

To conduct this integrative literature, Scopus was used as a primary source. The search criteria utilised under Scopus for this review included all scientific publications available and the search was based on titles, abstracts and keywords using the following search parameter "initial coin offering". The search generated a list of 139 articles dated from January 2018 until June 2020. Making use of the Prisma Flow Diagram, depicted the information through a systematic review. It mapped out the number of records identified, included and excluded, and the reasons for exclusions were: (1) publications with no author, (2) publications with no abstract, (3) publications with different topics, (4) publications with inadequate academic rigour, (5) publication not publicly available, (6) publications in a language other than English. After the exclusions, 64 publications remained to be analysed.

Table 1 - Selection Process

| Search Criteria                                         | Number of Publications |
|---------------------------------------------------------|------------------------|
| All scientific publications for "initial coin offering" | 139                    |
| Publications with "no author"                           | 7                      |
| Publications with "no abstract"                         | 3                      |
| Publications with a "different topic"                   | 47                     |
| Publications with "inadequate academic rigour"          | 1                      |
| Publications "not publicly available"                   | 10                     |
| Publications in a language other than English           | 7                      |
| Total remaining publications                            | 64                     |

### 2.3. Form of synthesis

In our study, a review was conducted by reviewing abstracts, followed by an in-depth review of each remaining article (Torraco, 2005). By close-reading each entry, the actual contribution made to scientific knowledge can be verified, while also determining if an empirical or mere theoretical contribution was made.

After reading the abstracts of all entries, it was clear that the research field was dispersed and scholars were using different methodologies and approaches while concepts were often used interchangeably.

The articles were coded by content and then compared to one another, enabling to detect high-level themes within the literature and finally, gathered similar themes into overarching dimensions that make up the basis of a new framework. Fig. 2 below shows the final themes categorisation within the aggregated dimensions strategy/planning, implementation, organisation and controlling.

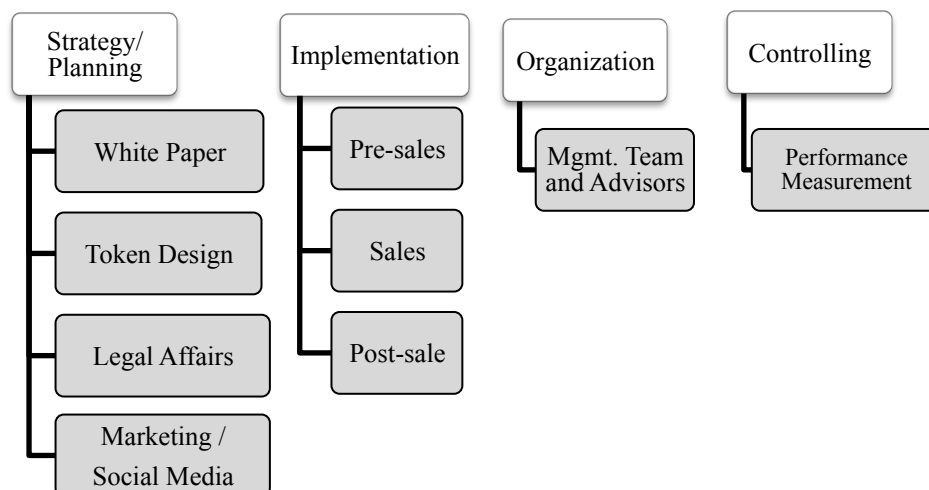


Figure 2 - Structure of the Review (own formulation)

## 2.4. Methodology Justification

As part of this dissertation, an integrative review is conducted to offer a holistic conceptualisation and synthesis of the literature to date.

It is important to clarify that this methodology should not be taken as an ordinary literary review, but rather as a review method that summarises past empirical or theoretical literature to provide a more comprehensive understanding of a particular phenomenon (Broome, 1993).

An integrative literature review is a distinctive form of research that generates new knowledge about a topic by reviewing, critiquing and synthesising representative literature on a topic in an integrated way that new frameworks and perspectives on the topic are generated (Torraco, 2005, p. 356).

Doing an integrative literature review is justified when addressing emerging topics, as these have not usually undergone a comprehensive review of the literature yet, the review is more likely to lead to an initial or preliminary conceptualisation of the topic (Torraco, 2005, p. 357).

Considering this, the topic of token sales qualifies for the proposed research methodology. Token sales have been the subject of research since early 2017, while the term "blockchain" was coined in 1991 by Stuart Haber and W. Scott Stornetta and reappeared in a 2008 paper written by an unknown author under the pseudonym Satoshi Nakamoto, describing a cryptocurrency based on blockchain (Bitcoin) and how it remounts to entrepreneurship.

Given the importance of token sales for the future of entrepreneurial finance and the range of fragmented knowledge with little integration, the goals of this review includes the critical analysis of literature in order to achieve a conclusion about the nature and use of token sales (Torraco, 2005, p. 361).

## Chapter 3

# Theoretical Background: Blockchain

## Technology

Many see blockchain technology as the solution for bringing trust and transparency to digital environments. It has the potential to expand trade, enable new markets and provide better tools to manage expensive processes. Companies from different industries are engaging in a wave of experiments with blockchain.

As radical technology innovation, blockchain creates an entirely new model for how computer programs can run in a decentralised, peer-to-peer, open-source manner that is not only virtually impenetrable but also does not require trusted intermediaries to authorise transactions. It is possible due to consensus and trust in direct communication between the parties.

Blockchain emerged back in 2008 when an unknown author identified under the pseudonym Satoshi Nakamoto proposed a cryptocurrency called Bitcoin. Some programmers saw the potential in the proposed ideas and developed robust blockchain-based networks such as Ethereum.

Blockchain combines existing technologies and techniques into a new architecture composed of five elements: distribution, encryption, immutability, tokenisation and decentralisation.

### 3.1. Distributed Ledger

The original blockchain was developed with the purpose of creating a distributed online payment system, using distributed ledger technology (DLT), a digital system for recording transactions of assets in which such transactions and their details (database) are recorded in multiple places (accessible) at the same time (synchronised) by multiple participants (Zamuda et al., 2019).

Unlike traditional databases, DLT has no central data storage or administration functionality. In other words, the ledgers are kept without the need for a financial institution or any other centralised trusted third party to verify the transactions.

DLTs are inherently harder to attack because all of the distributed copies need to be attacked at the same time for an attack to be successful. Also, these records are resistant to malicious changes by a single part. All the information on the ledger is securely and accurately stored using cryptography and can be accessed using keys and cryptographic signatures (Majaski, 2020).

### **3.2. Consensus**

As referred by Zhang and Lee (2020), in a distributed network such as blockchain, each node is both a host and a server, and it needs to exchange information with other nodes to reach a consensus.

A consensus mechanism is a mechanism that is fault-tolerant used to reach the necessary agreement among processes, and it is useful in record-keeping, among other things.

Zhang and Lee (2020) explained that the consensus protocol needs to make a trade-off among consistency, availability and partition fault tolerance. Besides, the consensus protocol also needs to address the Byzantine Generals Problem that there will be some malicious nodes deliberately attempting to undermine the consensus process.

Each transaction in the network becomes valid only when verified by the participants in the network and when consensus is reached according to the algorithm used (Grover et al., 2019).

Whereas there are different kinds of consensus mechanism algorithms which work on different principles, this study focuses on two: proof of work and proof of stake.

The proof of work (POW) is the most popular standard consensus algorithm used by cryptocurrency networks. It requires that a node proves that the processing power done qualifies to add a new transaction to the blockchain. However, this whole mining mechanism needs high energy consumption and a longer processing time (Zhang & Lee, 2020).

The proof of stake (POS) is another consensus algorithm, an alternative to POW, that involves the amount of responsibility in proportion to the number of tokens owned by the participant node. However, this comes with a drawback as it promotes crypto coin saving instead of spending (Zhang & Lee, 2020).

Zhang and Lee (2020) concluded that the consensus protocol is the guarantee for the stable operation of blockchain systems and the adopted consensus protocol thus needs to fit the demands of a specific application scenario.

### **3.3. Immutability**

Immutable means that something is unchanged over time or unable to be changed. As a rule, once the information is stored in the blockchain network, it becomes part of an immutable database. Grover et al. (2019) argued that blockchain is a distributed transaction ledger in a peer-to-peer network, in which each block contains transaction information and a cryptographic identification of the previous block.

Saying that blockchains are immutable does not mean that the data cannot possibly be changed, but rather that it is tough to change without collusion, and attempts to alter data are elementary to detect.

### **3.4. Smart Contracts**

Smart contracts are another innovation introduced by Ethereum. They are much like a legal contract. However, instead of being drawn up by lawyers and enforced by courts, they are written in computer code and can be self-enforced.

Some improvements have been built upon the traditional blockchain, and smart contracts are key constituents of this process fully automated by computer protocols on a blockchain. The smart contract sets forth a set of rules, eliminating any ambiguity, for the interaction of two or more parties. The terms defined as part of a smart contract are automatically executed if the pre-specified conditions are met, such as token price or sale duration.

The same could apply for a contract for the sale of a company, by which the smart contract would contain the ownership of the shares of the company and ownership rights. Payment would be sent to the smart contract, not directly to the seller. Once the smart contract receives the payment, it would transfer ownership of the company to the buyer and transfer the funds for the purchase to the seller.

Smart contracts run on the Ethereum Virtual Machine (EVM) and Ethereum blockchain, connected to the Ethereum cryptocurrency Ether.

### 3.5. Applications

According to the publication from Business Insider intelligence (2020), there is a growing list of applications and uses of blockchain technology across finance, business, government, and other industries, as shown in Table 2.

Table 2 - Blockchain Applications

| Areas             | Application                 | Description                                                                                                                                                                  |
|-------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Finance</b>    | International Payments      |                                                                                                                                                                              |
|                   | Capital Markets             | faster clearing and settlement, consolidated audit trail, operational improvements.                                                                                          |
|                   | Trade Finance               | enables enterprises to transact with each other beyond regional or geographic boundaries more easily.                                                                        |
|                   | Compliance and Audit        | useful for accounting and auditing because it significantly decreases the possibility of human error and ensures the integrity of the records.                               |
|                   | Money Laundering Protection | technology empowers record keeping, which supports "Know Your Customer (KYC)," the process through which a business identifies and verifies the identities of its clients.   |
|                   | Insurance                   | insurance through smart contracts. These contracts allow customers and insurers to manage claims transparently and securely, rejecting multiple claims on the same accident. |
|                   | Peer-to-peer transactions   |                                                                                                                                                                              |
| <b>Business</b>   | Supply Chain Management     | real-time tracking of goods.                                                                                                                                                 |
|                   | Healthcare                  | devices will be able to store the data generated on a healthcare blockchain and append it to personal medical records.                                                       |
|                   | Real Estate                 | transparency throughout the entire selling and purchasing process.                                                                                                           |
|                   | Media                       | enable content producers to manage and distribute premium video to consumers and business partners without content delivery networks.                                        |
|                   | Energy                      | execute energy supply transactions, measuring, billing, and clearing processes.                                                                                              |
| <b>Government</b> | Record Management           | simplify record-keeping and making the data far more secure.                                                                                                                 |
|                   | Identity Management         | users of public services would only need to provide minimal information (date of birth, for example) to prove their identities.                                              |
|                   | Voting                      | a vote would be attributed to one ID, and tallying of votes would become more efficient and effective.                                                                       |
|                   | Taxes                       | a cumbersome process of filing taxes could be replaced by automated processes in each transaction.                                                                           |
| <b>Others</b>     | Record Management           | prevents duplicates, fraudulent entries, etc.                                                                                                                                |

|  |                        |                                                                                                                                            |
|--|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
|  | Cybersecurity          | removes the risk of a single point of failure and provides end-to-end encryption and privacy.                                              |
|  | Big Data, Data Storage | the immutable nature of blockchain, and the fact that every computer on the network is continually verifying the information stored on it. |
|  | Internet of Things     | tracking the location of goods in the supply chain, assets and machinery record activities and output.                                     |

# Chapter 4

## Literature Review

This chapter contextualises Entrepreneurial Finance, Fundraising Mechanisms, Token Sales and Token Sales Market Landscape.

### 4.1. Entrepreneurial Finance

As the name suggests, Entrepreneurial Finance (EF) is in the middle of Entrepreneurship and Finance. On the one hand, finance is disciplined and orderly, based on calculated risks and looking for proven records. In contrast, Entrepreneurship is a messy and disruptive affair, based on treading into the unknown (Da Rin & Hellmann, 2020).

The term 'Entrepreneurial Finance' first appeared in the 20th century and is defined as the provision of funding to young, innovative and growth-oriented ventures. At the core of EF, there is an exchange between an entrepreneur and an investor, where the entrepreneur receives funds, and in return, gives the investors a right on the venture in the future.

From the entrepreneur perspective, funding is essential to pay for their venture, and many do not have resources for that. Therefore, there is a need to raise money from an external source. Funding the right venture is crucial for generating more returns over investment, from the perspective of an investor. Lastly, this ecosystem matters for the economy and society as an essential driver of economic growth (Da Rin & Hellmann, 2020).

The EF process consists of 3 principles: the gathering of resources (financing is one of the most important resources that allows acquiring others), uncertainty (unknown range of outcomes and probabilities) and experimentation (exploring new opportunities).

### 4.2. Fundraising Mechanisms

Any new venture needs financing and, the entrepreneurs have to decide where to obtain, how to invest and how much funding to borrow. Entrepreneurs can raise capital from several sources.

External financing is the most common type of funding adopted by entrepreneurs. This category includes bank loans, private equity in return for financing, such as Angel Investors, Venture Capitalists, Crowdfunding campaigns and, in mature stages, Initial Public Offerings (IPO).

Recently the blockchain technology has attracted the attention of entrepreneurs and investors as it poses a new fundraising mechanism to finance companies (Token Sales).

#### **4.2.1. Review of traditional methods**

When discussing external finance, there are some traditional actors and mechanisms which serve as a comparison for the more modern approach of token sales.

A bank loan is a credit that is borrowed over a fixed amount of time from the bank. Loans can be secured or unsecured – if secured, it is borrowed against collateral owned by the borrower (e.g. a house). Loans typically bear interests, which make up the total cost of the funding. The interest rate might be fixed or variable. However, banks are strict about lending to startups, although it is not impossible to obtain a loan if the applicant fulfils certain requirements.

Angel Investors are individuals or groups of wealthy individuals who invest money or equity financing in a startup or early-stage small businesses. An angel investor will only invest when comfortable with the startup business plan, clear evidence of traction towards the plan, characteristics of the founders and market opportunity for potential growth. Finding the right investors interested in a specific sector can be a very time-consuming process. The best manner to find an angel investor is a solid introduction from a colleague or friend of an angel.

Venture Capital financing is provided by venture capital firms or funds in the form of private equity to startups, early-stage and emerging companies with high growth potential. In exchange for the high risk, venture capitalists usually get significant control over corporate decisions, with a significant portion of ownership of the company and, consequently, its value. The venture capitalist's goal is to obtain a high return on the investment over some time, usually forcing the company to follow an aggressive growth strategy.

Crowdfunding facilitates solicitation of investments or donations by providing a platform to leverage the reach of the internet to link fundraisers to a vast number of potential supporters. In terms of accessibility, crowdfunding is generally limited to a certain country or certain regions. Crowdfunding mechanism is subject to specific regulations (Tiwari, 2019) when involving a promise of return in the forms of a potential profit or reward.

An Initial Public Offer (IPO) is the process by which a private company issues its first shares of stock for public sale traded in the securities exchange market. An IPO is a big step, usually fit for companies that reached a particular maturity stage while also meeting a series of requirements by exchanges and regulations. More recently, IPOs have moved to focus on so-called unicorns, private startup companies with valuations of \$1 thousand million US dollars or more. It is definitely not an option for every company as it demands a complex process involving heavy regulation.

### 4.3. Token Sales

New fundraising techniques have emerged in the last few years, with the advent of blockchain technology. These new alternatives based in tokenisation allow the creation of new assets that can be traded in a new token sale ecosystem and provide new ways to treat financial information and assess risk, allowing easier participation of non-professional investors, provide greater liquidity and reduce costs of investors, but can also lead to higher risk.

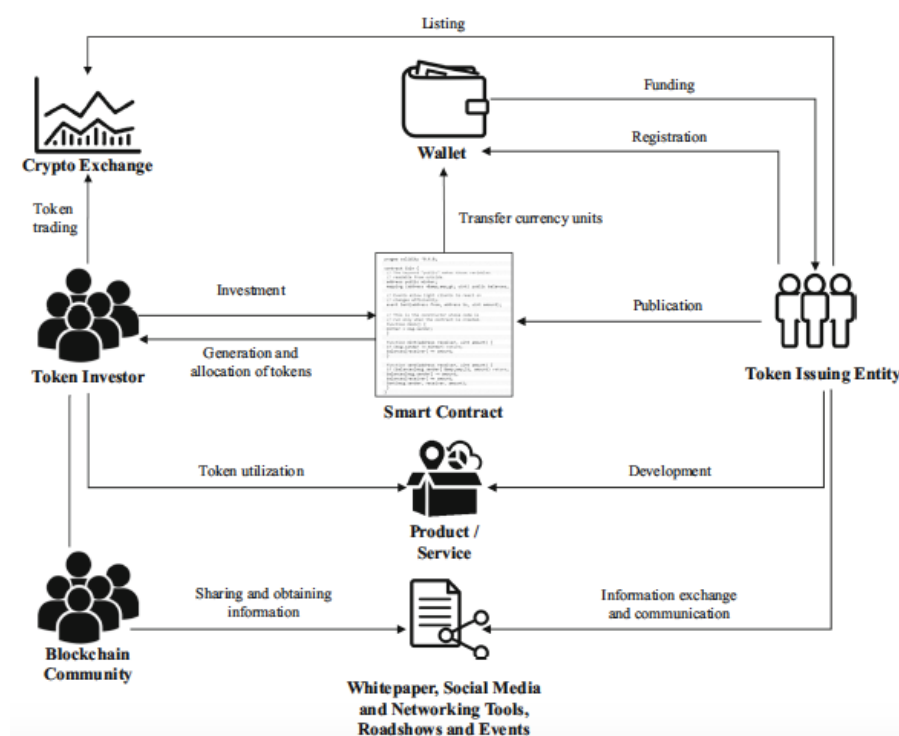


Figure 3 - Token sales ecosystem (Kranz et al., 2019)

According to Kranz et al. (2019), Token Sale (TS) is a term that refers to the alternative way of raising capital on a peer-to-peer basis to support the development of a

particular project or initiative. They differ from traditional crowdfunding and other forms of entrepreneurial finance in several important ways.

Since the first Token Sale in 2013, the number of events and the amount of funding collected has increased rapidly. In 2017, 552 TSs were completed, raising a total amount of more than USD 7 thousand million, at an average of USD 12.75 million per TS. By January 2019, the highest all-time funding volume of a single TS exceeded USD 23 thousand million.

The issuing entity generates cryptographic tokens which can be bought by investors. The new phenomenon of selling cryptographic tokens on the blockchain is also known as a token generation event, token launch (Kranz et al., 2019), initial coin offering (ICO), security token offering (STO) and more recently initial exchange offering (IEO).

More than 80 per cent of TSs are structured on the Ethereum platform. This is not only because Ethereum was explicitly designed to serve smart contracts, but also because it has a good track record of success, and therefore users tend to trust the platform.

#### **4.3.1. Token Classification Framework**

According to Li and Mann (2018), selling rights to a digital service before having an operational platform can be an efficient mechanism of funding. Although there are detailed descriptions of the different classes of rights attached to tokens, market practitioners generally only recognise three types of tokens, namely utility, security and payment. Similarly, Hacker and Thomale (2018) argued that there are three different archetypes of tokens, with each token sharing some or all of these types in different degrees: currency, utility, and investment tokens. In the following, the neutral terms used in this study will be currency, utility and security tokens.

Currency tokens are inherent to a blockchain and only has utility in this blockchain, *e.g.*, Bitcoin or Ethereum.

Utility tokens serve as “digital coupons” which can be redeemed for the issuer’s offerings or to gain access to a platform or application. In other words, they are designed to serve a particular use and not to serve as investments (nor do they represent shares of a company) although that does not mean that they are not capable of generating any profit to its holder (Momtaz, 2019).

Security tokens are tokens that give investors ownership rights of a company. A subcategory of security tokens is equity tokens, which additionally provide control, shares, profits and voting rights over the blockchain framework.

#### 4.3.2. Process of Token Sales

Token Sales can be structured in several different ways (Kranz et al., 2019), simplified and clustered into three main stages of design and implementation, based on the most essential and common activities (see Fig. 4).

Generally, authors state that TSs are executed through a smart contract in Ethereum blockchain, as they provide for an easy and quick way to create a new token. It is fundamental to recognise which mechanisms have been used to deploy the token in a blockchain system.

In the Pre-Sale stage, it is important to select a market design and define the token model aligned with the business model, the strategy and the interest of investors. When developing the smart contract, it is common to set parameters, such as total token supply, burning rules, funding goal and duration, freezing options, token value bound to a cryptocurrency like Bitcoin or Ether, caps and specify the value of a token. Issuers determine a lower and/or upper limit of funding. In the case of a lower limit, a so-called soft cap (funds needed), the invested funds are paid back to investors if the defined soft cap is not reached. A hard cap defines the maximum amount of funding an issuer seeks to raise. Once this limit is reached, no more investments are accepted by the smart contract.

According to Cruz (2019), after the definition stage, the issuer gives further information covering all aspects of the token sale written in a “white paper” which describes the terms and conditions of the TS, specifies the targeted investment amount, the deadline for the sale of the tokens, the purpose of the token, the currency accepted for funding and a benchmarking of the benefits and risks of the project.

A marketing campaign is initiated with the primary goal to attract investors (mainly institutional and small investors), releasing some announcements in online forums or crypto-communities and sometimes organising conferences and conducting roadshows to present the project.

In order to allow investors to assess the technological solution and the *status quo* of its implementation during the pre-TS stage, many issuers partly or fully publish their prototype’s source code on a web-based hosting service (e.g., GitHub), often in an alpha or beta version (Kranz et al. 2019).

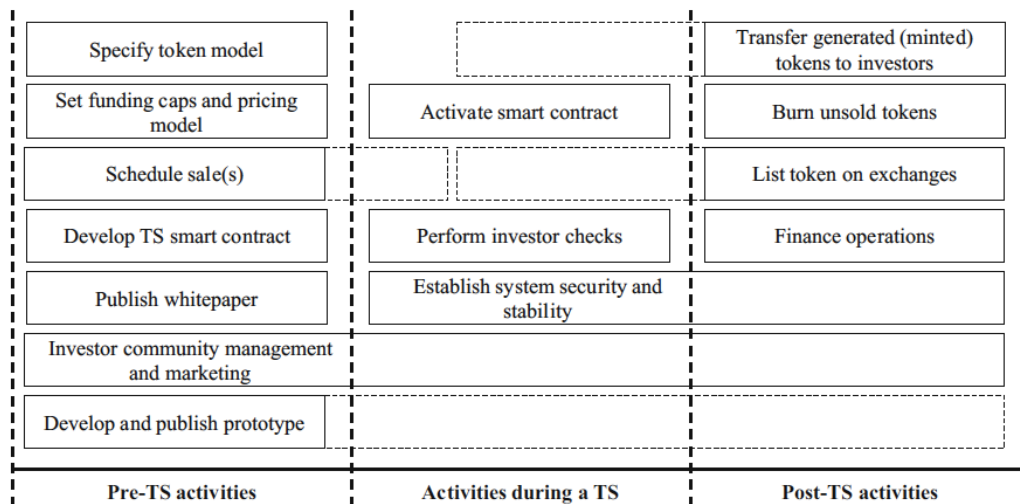


Figure 4 - Phases of the token sale framework (Kranz et al.,2019)

The actual TS starts with the activation of the smart contract. Depending on the nature of the operation, before investors send money to the smart contract, they need to go through a so-called "whitelisting" to identify and verify the investors before granting them an opportunity to purchase the token. The market practice has evolved to include in place Know-Your-Customer (KYC) and Anti-Money-Laundering (AML) procedures as part of TSs to prevent money laundering or "pump and dump" behaviours.

Investors send funds, usually cryptocurrencies such as Bitcoin or Ether, to the smart contract, which transfers the currency units to the digital wallets of the issuing entity. For security reasons, these wallets store one or more public and private keys which are needed to send and receive cryptocurrencies, to prevent theft of the invested funds.

Finally, in the Post-TS stage, the smart contract transfers tokens to each investor's wallet, proceed to burn unsold tokens and list the sold tokens on the applicable crypto-asset exchange. Based on the received funds and the investor network established through the TS, issuers further develop the product or service, and integrate the token in their offering.

#### 4.3.3. ICO - Initial Coin Offering

Hashemi Joo et al. (2019) argued that the ICO's cross-border accessibility adds tremendous value not only to businesses but also to investors across the world. Traditionally, it was difficult for small businesses or projects in one country to seek capital from foreign investors simply because there is no or a very limited avenue to do so. The nonexistence of such avenue may have resulted from the fact that it is not simple to set one-for-all

regulations. The only apparent way for foreigners to invest in companies located in another country was through investing in stock markets, which are a heavily regulated space. The ICO opens the door to such international investors who are restricted by options to invest in a global market, meaning democratisation of investment (Nascimento, 2019).

ICOs allow any investor to support a venture at almost any level, even in increments of \$0,01, meaning it may be designed to require very little money from a more significant number of participants.

In an ICO, investors buy tokens directly from the issuer at a predefined price. Therefore, ICOs investors provide the venture with early-stage financing that is available directly and immediately. In addition, tokens can be traded on a secondary market after the conclusion of the ICO, irrespective of their primary utility or security function (Fisch et al., 2019).

An early experiment with ICOs happened in 2014 when Ethereum was created to provide a foundation for programming smart contracts and became the standard for blockchain "crowdfunding". Ether raised USD 18 million in a single month and continued to become the world's second-largest cryptocurrency with a market value of USD 29 thousand million as of September 4, 2018, making Ether one of the most successful ICOs in history.

ICOs resemble crowdfunding in their approach since they raise funding from a crowd of investors via an open call on the internet. However, one distinguishing characteristic is the concept of selling tokens, which can provide value to investors via a utility or security function.

Compared to the IPO process, the ICO process has almost no requirements to be fulfilled. Anyone who has an innovative idea or is willing to create a company is eligible to file for an ICO, and any firm that is ready for an IPO also has an option of filing an ICO (Fisch, 2019).

The time for funding and meeting the maximum capacity of the ICO is solely dependent on the contexts of the ICO, and how much resources it attempts to raise, but a typical time frame for an ICO is generally 41 days (Benedetti & Kostovetsky, 2018).

The unregulated nature of ICOs has unfortunately attracted scammers to create fake ICOs to take money from investors. Therefore, investors did not have any kind of recourse against the loss of their capital, and the projects could not provide their customers with proper insurance or were not backed by any kind of hard asset (Nascimento, 2019).

The poorly defined rules around ICOs are rapidly gaining attention from the regulatory bodies. Some countries adopted a rigid posture and banned ICOs, and others adopted a more inclusive approach (Fisch, 2019).

Another occurrence appointed by Nascimento (2019) was the lack of a business plan for many companies launching ICOs. Many raised millions of dollars simply based on a single "white paper" (a simplified version of a business plan) without a clear definition about what would happen with an investor's capital.

#### **4.3.4. STO - Security Token Offering**

The overwhelming number of token sales combined with the rise of failed projects and intentional scams made individual investors more critical. In particular, regulatory bodies took notice when tokens were launched with clear security token status, resulting in the increase of regulatory pressure in more tightly regulated countries.

Security tokens (or tokenised securities) are digital securities on a blockchain. Startups usually issue them in the form of ownership shares or financial securities (equity, debt, revenue share, convertible note, dividend, bond, etc.) for fundraising purposes during a token sale. In this sense, smart contracts need to be more elaborated with requirements that provide some legal protection to issuers and investors.

STOs must be regulated as they are subject to evaluation of regulatory bodies and, depending on its complexity, may be limited to accredited investors. The efforts of most governments concerning STOs are focused on protecting the rights of the investors by creating flexible regulatory framework complying with existing security laws (Nascimento, 2019), by offering embedded business logic requirements such as know your customer (KYC) and anti-money laundering (AML).

An STO would only apply to the issuance of security tokens while ICOs would apply for utility purposes, but with improved smart contracts specifying requirements for both issuer and holder that define who gets what in the exchange. To prevent market manipulation, projects might choose to set up freezing or cool-off periods. Freezing periods are those in which investors are not allowed to transfer their tokens for a certain amount of time and cool-off periods are usually applied to holders or investors of high amounts of tokens purchased at a discount to prevent them from dumping their tokens, causing a price crash.

Security tokens make things simpler, faster and easier than shares because: tokens are digital (accountable, traceable and nearly impossible to counterfeit), transaction costs are lower (close to zero), and tokens enable fractional ownership with no additional cost.

Liquidity is far better, and equity investments are illiquid for years in startups. Security tokens become liquid much faster, some times immediately, with faster returns and greater facility of equilibrating an illiquid portfolio and the ability to realise returns at any time (in theory).

Depending on regulation, STOs require fewer or more limited disclosures than IPOs or other traditional offerings, which would reduce the costs for issuers. Costs of an STO are typically located somewhere between an ICO and an IPO.

Because of these benefits, it can be thought of a tokenised security as an improved form of equity. Security tokens can significantly expand the number of offerings, which would be available to a much wider audience of retail investors while impacting and improving the way financial institutions communicate, and as a final result providing more liquidity and access to capital to all players involved (Nascimento, 2019).

#### **4.3.5. IEO - Initial Exchange Offering**

As the market matures, new token sale mechanisms and new third-party services providers are entering the market. Exchanges have started to provide their platforms for fundraising purposes in a type of token sale referred to as Initial Exchange Offering (IEO). An IEO is essentially a platform service far from the peer-to-peer nature of original token sales that were conducted by a smart contract (Blandin et al., 2019).

Through an IEO, an issuer sends its tokens to an exchange, which then sells the tokens to investors in exchange for other funds. Instead of the initial offering taking place directly on the issuer's website (as in a traditional ICO), the IEO it is made through a trusted third party (the exchange), which has a strong KYC regulation.

IEOs seems to be a promising distribution channel for token sales, reducing the risks associated with a traditional ICO or STO, in which a project might have problems getting an exchange listing. IEOs also reduce the risk of low token liquidity for investors, in case a token fails to get listed on an exchange (Goutte et al., 2019).

IEOs make the purchase process easier for investors, especially for retail investors. Furthermore, they reduce the bureaucracy of registering for a token sale and going through a separate identification process for KYC and AML.

Since exchanges have a reputation to maintain, it can be expected they will not accept just any token for listing, reducing the possibility for scammers, offering certain protection to investors.

Nonetheless, investors ultimately have to trust exchanges as the intermediaries in an industry where the track records of many exchanges over the past years has been more than poor.

#### 4.3.6. Comparison of Mechanisms

The three blockchain-based mechanisms differ in many ways. Each mechanism has different relevant layers of interaction or characteristics, such as investor participation, capital formation, regulation, application, investor right and due diligence (see Fig. 5).

|                                                                                                                              | Initial Coin Offering (ICO)                                                                                                                 | Initial Exchange Offering (IEO)                                                                                     | Security Token Offering (STO)                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                              | 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                                                  |
|  <b>Investor participation</b>            | 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)                                                                                   |
|  <b>Capital formation process</b>         | 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                                                                                                |
|  <b>Regulation</b>                        | 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                                                                 |
|  <b>Token application &amp; liquidity</b> | Various services & usage opportunities depending on type 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                                          |
|  <b>Investor rights</b>                   | 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                                          |
|  <b>Vetting / Due Diligence</b>           | 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 3 <sup>rd</sup> parties (e.g. audit firm)                                                                |
|                                                                                                                              |  <b>Token based funding instrument in its “raw” form</b> |  <b>ICO on a crypto exchange</b> |  <b>Stronger regulated form of ICO &amp; tokens qualify as securities</b> |

Figure 5 - TS Mechanism Comparison (PWC, 2019)

Such differences can also be observed while comparing the TS process of each one (see Fig. 6).

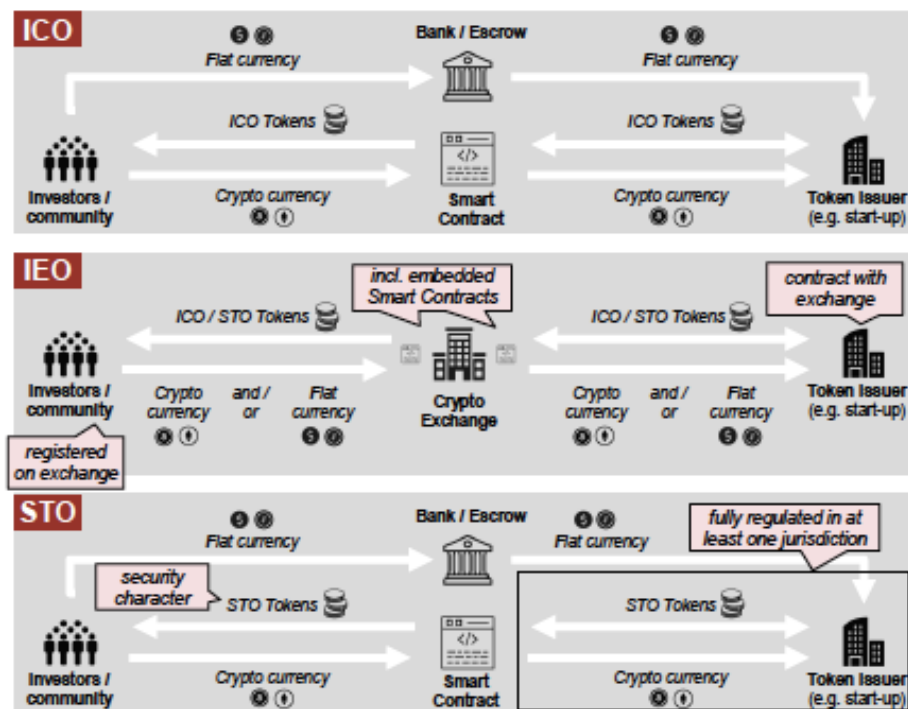


Figure 6 - TS Process Comparison (PWC, 2019)

A simplistic comparison could be put as (i) ICOs, and STOs do not require an intermediary, whereas IEOs do; (ii) ICOs are unregulated, while STOs must comply with the directives and ordinances of regulatory bodies; (iii) tokens in an ICO have a utility nature, whereas the tokens in an STO have a security nature; and (iv) while ICOs are more prone to fraud risk, IEOs are relatively more secure for entrepreneurs and investors.

#### 4.4. Token Sale Market Landscape

The world is often struck especially by technology changes, and it can result in the complete modernisation of a process or even an entire industry. In this section, the primary intent is to present and analyse some figures to better understand the magnitude of the token sale phenomenon (see Fig. 7).

After an overall weak 2018 for the crypto market, the sideways trend continued until the beginning of February 2019, resulting in a low point of ca. USD 110 thousand million total market capitalisation by February 6 2019. Supported by the following clarification of regulatory landscape paired with renewed interest in cryptocurrencies by institutional investors and established corporations, the crypto market has seen a significant recovery until

the end of May 2019 (total market cap: ca. USD 270 thousand million), indicating an end of the “Crypto Winter” (PWC, 2019).

In the first half of 2019, global crypto ecosystem experienced substantial growth, resulting in a year-to-date peak market capitalisation of approximately USD 370 thousand million by the end of June. In mid-2019, total funding volume of token offerings considerably dropped from ca. USD 1,322 million on May 1 to USD 151 million in June. Until the end of October, development continued to stagnate with an average funding volume of USD 171 million per month (in contrast, the monthly average from January through May 2019 was USD 653 million) (PWC, 2020).

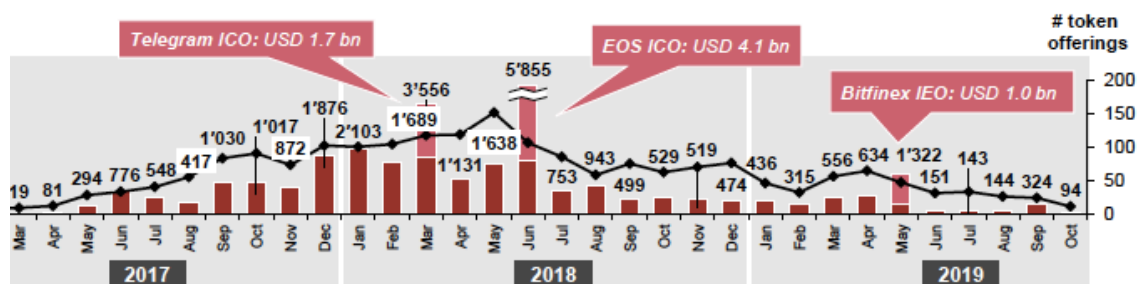


Figure 7 - Monthly Number and Volume of Token Offering (PWC, 2020)

Throughout the first ten months of 2019, more than 380 token offerings have been successfully completed, managing to raise a total of ca. USD 4.1 thousand million (PWC, 2020). Overall token offering development can be seen in Fig. 8.

| Year                   | Ø Duration (d)   | Ø USD mn <sup>1)</sup> | Total # | Total volume (USD mn) <sup>1)</sup> |
|------------------------|------------------|------------------------|---------|-------------------------------------|
| 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 <sup>2)</sup> | 12.3 <sup>2)</sup>     | 1'132   | 19'689.3                            |
| 2019 YTD <sup>3)</sup> | 81*              | 10.8*                  | 380*    | 4'118.5*                            |
| All                    | 49.7             | 6.6                    | 2'113   | 31'144.3                            |

Figure 8 - Token Offering Development (PWC, 2020)

STOs continue to act as a pivotal blockchain-based instrument (see Fig. 9). In the second half of 2019, STOs did not experience any significant growth (in terms of funding volume and numbers of completed offerings) but continued to strengthen their general scope and relevance in the global crypto token offering sphere (amongst others, through corporate directly-issued STOs) (PWC, 2020).

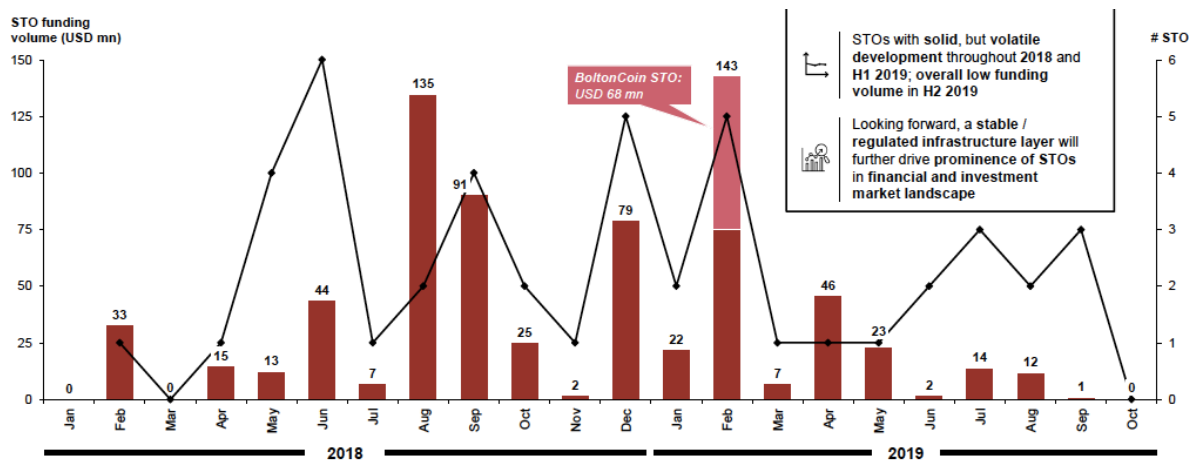


Figure 9 - Monthly development of STOs (PWC, 2020)

Despite the declining development of token offerings in the second half of 2019, IEOs are gaining relevant momentum in the crypto sphere (see Fig. 10).

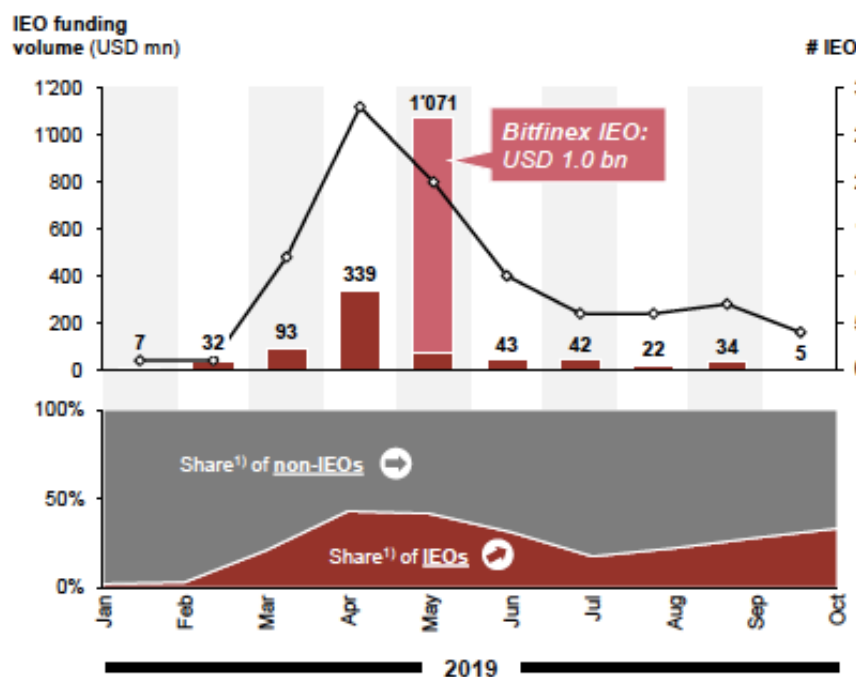


Figure 10 - Development of IEOs (PWC, 2020)

#### 4.4.1. Geography of Token Sales

Throughout 2018 and until October 2019, the USA, Singapore, Hong Kong and the UK are ranked as leading token offering hubs worldwide (in terms of funding volume and number of completed offerings). Further countries with relatively small-sized domestic financial markets, as the British Virgin Islands, Cayman Islands, Estonia and Lithuania, continue to be attractive crypto offering locations globally (PWC, 2020) (see Fig. 11).

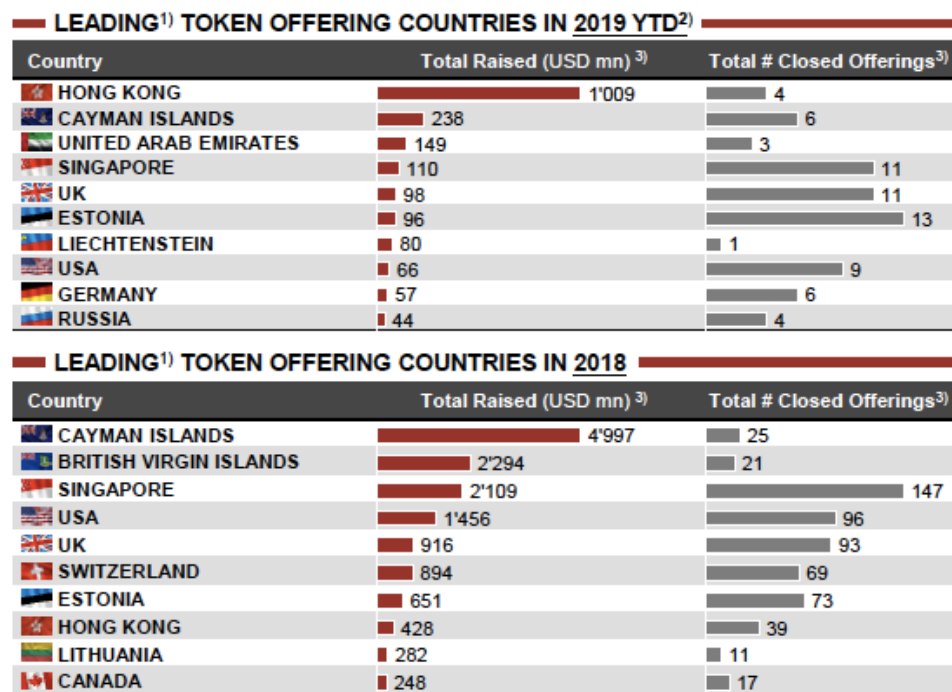


Figure 11 - Leading TS Countries (PWC, 2020)

#### 4.4.2. Regulation

A significant impediment to the analysis and the formulation of clear policies for the emerging crypto asset and blockchain industry is the lack of clear and common terminology (Blandin et al., 2019, p.8).

Regulatory guidance and legislative initiatives on crypto-assets seem to be converging towards a three-category classification: payment, utility, and security tokens. This broad categorisation may become more refined over time, as legislators, regulators and courts encounter an increasingly diverse set of crypto assets (Blandin et al., 2019, p.16).

Regulators in both developed and developing economies are getting to grips with the regulatory challenges raised by these activities, including the need to balance the benefits of innovation with other regulatory objectives such as financial stability and integrity, and consumer and investor protection. They have often acted on their concerns: several regulatory agencies have issued warnings to investors and consumers, conducted enforcement actions, developed guidance or enacted laws to provide regulatory clarity and mitigate against risks. However, regulatory responses in the crypto asset landscape have been far from homogeneous across jurisdictions (Blandin et al., 2019, p.30).

Jurisdictions around the world have encountered a number of challenges when addressing regulatory issues surrounding crypto assets, and the lack of harmonised and

coordinated regulatory responses allows crypto-asset market participants to exploit regulatory loopholes and circumvent stringent regulations (Blandin et al., 2019, p.54).

## Chapter 5

### Research Streams

After categorising the relevant articles in the database, the patterns were analysed, and trends of research carried out on the subject of the present study.

#### 5.1. Journals and Year of Publication

Researches started to emerge about initial coin offering or token sales from 2017 onwards. It is a relatively new subject, based on technology back to 2008. The majority of the articles appeared in journals of Business Economics (twenty-two articles), followed by Law Reviews (nineteen articles), Finance Management (five articles), Engineering (five articles), technology (four articles), Electronic Commerce (four articles), Entrepreneurship (three articles) and Investment Management (two articles), see Table 3.

Table 3 - Summary of relevant articles by source and year

| Journal Year | Business Economics | Electronic Commerce | Engineering | Entrepreneurship | Finance Mgmt. | Investment Mgmt. | Law Review | Technology | Sum       |
|--------------|--------------------|---------------------|-------------|------------------|---------------|------------------|------------|------------|-----------|
| 2018         | 4                  | -                   | 2           | 1                | -             | 1                | 8          | -          | 16        |
| 2019         | 7                  | 1                   | 3           | 1                | 2             | -                | 7          | 2          | 23        |
| 2020         | 11                 | 3                   | -           | 1                | 3             | 1                | 4          | 2          | 25        |
| <b>Sum</b>   | <b>22</b>          | <b>4</b>            | <b>5</b>    | <b>3</b>         | <b>5</b>      | <b>2</b>         | <b>19</b>  | <b>4</b>   | <b>64</b> |

#### 5.2. Study Methodologies

After reading and identifying all entries in our database, a division of methodologies used by scholars emerged. Figure 12 displays the number of publications for each methodology type, and Figure 13 displays the number of publications for each methodology approach. When considering Figure 12, it is important to remark that most researchers conducted their studies using empirical and exploratory methods, and Figure 13, most adopted qualitative, followed by quantitative approaches.

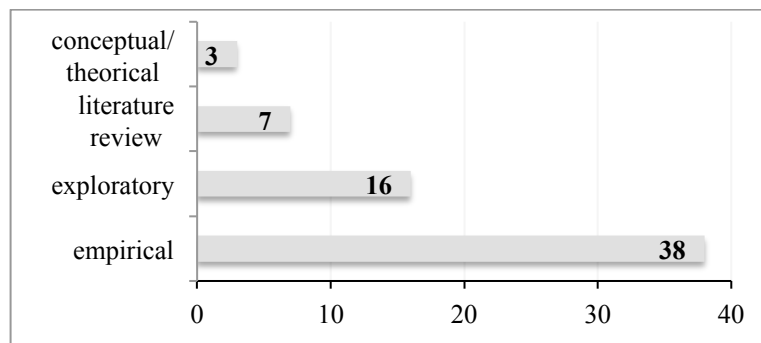


Figure 12 - Methodology Type

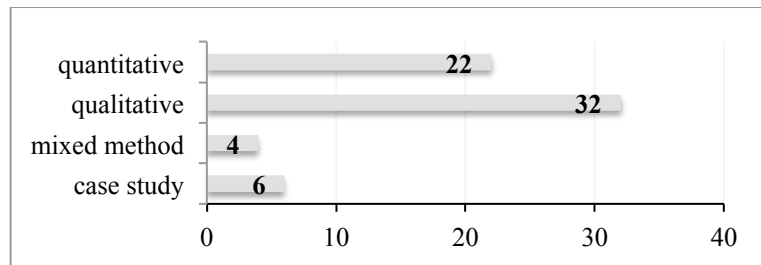


Figure 13 - Methodology Approach

### 5.3. Types of Dimensions and Themes

Figure 14 illustrates the distribution regarding the research focus of the analysed studies by applying the previously developed, content-related overarching categories. The most significant proportion of the analysed studies addressed aspects related to the strategy/planning of a token sale (forty-one articles), followed by studies which addressed aspects related to the organisation (ten articles), controlling aiming measure performance (eight articles) and a considerably lower proportion of studies focused on implementation (five articles).

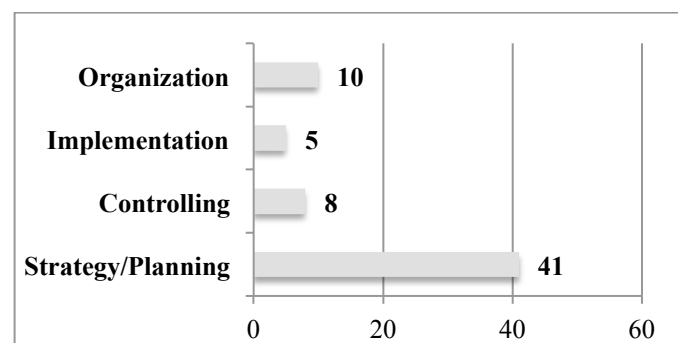


Figure 14 - Types of Dimension

Figure 15 illustrates the distribution by themes. The largest proportion of the analysed studies addressed legal affairs (twenty-three articles), followed by studies in performance

measurement (eight articles), selling phase, management team/advisors (four articles each), token design (five articles), white papers (two articles) and, marketing/social media (one article). A considerable proportion of studies focused on multiple themes, making them difficult to separate into either of the previous categories (seventeen articles).

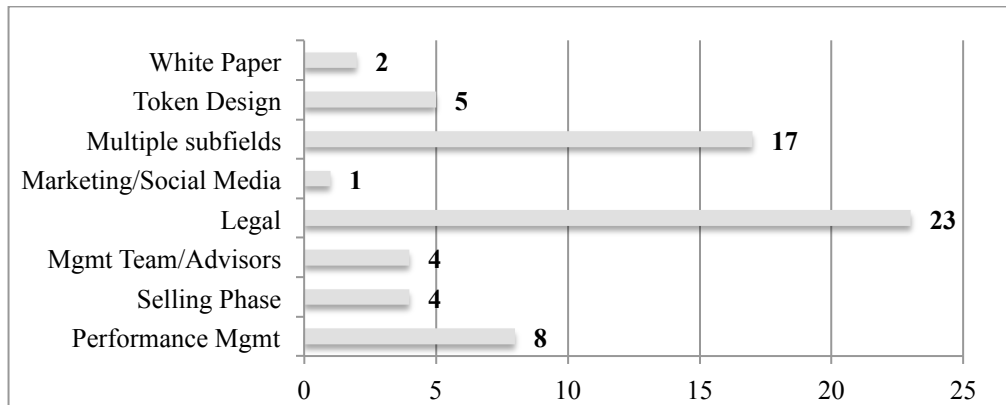


Figure 15 - Distribution per Theme

In the following chapter, the current state of the research is presented in a systematic and synthesising way, using the categorisation already outlined in the method section of this paper, comprising the aggregated dimensions of strategy/planning, implementation, organisation and controlling.

## Chapter 6

# Success and Contingency Factors

The majority of entrepreneurship research views token sales as a new, innovative way of democratisation and disintermediation form of entrepreneurial finance, including the overall mechanisms, advantages, weaknesses and success factors (Kher et al., 2020; Roosenboom et al., 2020; Demidenko et al., 2018; Chanson et al., 2018; Shaw, 2018; Sapkauskiene & Visinskaite, 2020; Harrison & Mason, 2019; Samieifar & Baur, 2020).

The first TS studies were based on the results of previous research on crowdfunding, IPO or other funding methods that are often compared to TSs (Kher et al., 2020; Block et al., 2020). TSs are still underdeveloped, controversial and will continue to develop in the future, which will allow it to become increasingly important in the financing of innovation and entrepreneurship (Chen, 2018; Harrison & Mason, 2019).

All themes presented in the conceptual framework are essential to conducting a TS. This chapter will cover all of such conceptual aspects, aiming to provide an overview and discussion about the main success and contingency factors for TSs, as identified in the reviewed literature. Such conceptual notions will be presented by groups, whereas the contingency factors are listed separately because they cannot be controlled and affect all dimensions of token sales management significantly.

### 6.1. Strategy/Planning

Strategy can be intended or can emerge as a pattern of activity as the organisation adapts to its environment or competes (Freedman, 2015), and it involves activities such as planning. Strategic planning describes how the ends (goals) will be achieved by the means (resources), but without the existence of a general regulatory framework, there is no standard on how to structure and develop TSs. The findings in the literature about each theme will be presented in a systematic sequence to facilitate understanding, although it should be noted that such themes are interconnected.

### 6.1.1. White Paper

The purpose of a white paper is to describe the project, and it is used as the main source of information for evaluating a TS, such as its goal, the identity of the team involving in the TS, the process through which the token will be established, and the benefits and risks of the business plan. Basically, it provides a roadmap of the TS development and financial information about the funds required (Cruz, 2019; Samieifar & Baur, 2020; Momtaz, 2020a).

Recent studies about the complexity and characteristics of the white paper confirm previous findings in the literature and strengthen the hypothesis that the length of a white paper impacts the success of a TS (Samieifar & Baur, 2020; Fisch, 2019; Cruz, 2019; Amsden & Schweizer, 2018).

Also, there are pieces of evidence that detailed information in the white paper increase credibility and the tendency for an investor to invest in projects (An & An, 2020; Perez et al., 2020). Furthermore, if the document presents a set of codes (even partial ones) as a tangible proof-of-concept for the blockchain project, this strongly and positively affects the TS (Adhami et al., 2018), while other argue that investors may not have enough tangible reference points for their investment decisions (Momtaz, 2020).

Investors can only rely *ex-ante* on the reputation of the founders and a general evaluation of the business plan, trusting on unaudited information released in the 'white paper'. Also, there is not any type of standardised disclosure rule, which promotes an ambiguous level of liability for TSs promoters, which is limited by frequent disclaimers (Giudici & Adhami, 2019).

Also, the technical information in white papers seems difficult to comprehend by most investors (Samieifar & Baur, 2020) who do not have the time and expertise to conduct due diligence of the project themselves (Roosenboom et al., 2020) but having a technical white paper significantly increases the amount raised (Fisch, 2019).

Disclosures in white papers about the percentage of token allocation to subscribers, advisors and ecosystem development, also increase the amount of funds and chances for success (Charlotte et al., 2019).

### 6.1.2. Token Design

Token Design entails setting all crucial characteristics of the new token in the TS (to be managed by a smart contract), such as token type (utility or security, and rights), sales

caps (soft and hard), the quantity of token and price, lock-up period, restrictions (location, resale, etc.) and currency of purchase.

Most current research on TSs design mechanisms examines token construction and valuation (Liu & Wang, 2019) and empirical studies show that the cases which use utility token and disclosure of others point elements in the white papers positively influence the success of a TS (Adhami et al., 2018; Charlotte et al., 2019; Fisch, 2019).

Studies found that often TSs are adopted to sell utility tokens (Cruz, 2019; Adhami et al., 2018; Momtaz, 2020). Charlotte et al. (2019) found that factors such as the percentage of the target fund, region of the issued countries, total supply of tokens for sale, acceptable currencies, discount in token price, the exchange rate to US dollars, and post-TS bonus schemes demonstrated significant positive correlations on the amounts raised, and Adhami et al. (2018) agreed with regards to bonus schemes. Fisch (2019), however, found that differences between utility and security tokens do not seem to influence the amount raised. Moreover, offering a higher percentage of issued tokens for sale causes a negative effect on the amounts raised and the probability of token to be traded (Amsden & Schweizer, 2018; Giudici & Adhami, 2019). The existence of a soft cap demonstrated to be an important requirement, but setting a higher target amount as the soft cap reduces the probability of reaching that target and, by extension, reduces the probability of the hard cap being reached, impacting the overall amounts raised (Amsden & Schweizer, 2018; Hartmann et al., 2018).

Concerning the offerings of security tokens analysed by Fisch and Adhami, only 17% of them offered investors benefits (Fisch, 2019), while governance rights (such as voting in decision polls) are granted in 24.9% of them, whereas profit rights are offered in 26.1% of the cases, while contribution rights (i.e., the opportunity to determine the characteristics of the product/service to be offered) are provided in only 16.2% of the projects (Adhami et al., 2018).

Retention of a portion of issued tokens by the issuer and its founding team is also another valid signal for investors, especially when these tokens resemble traditional securities. This result is similar to previous evidence regarding IPOs and crowdfunding deals, yet find that this signal is weaker when the token is not an investment or a cryptocurrency, but just a means to access a service (Giudici & Adhami, 2019).

### **6.1.3. Legal**

Vandezande (2020) proposed that, when offered through a TS, tokens primarily issued to serve as means of investment, rather than as means of payment, may already be considered as transferable securities. These requirements are not necessary if the issuer can demonstrate that such tokens have no investment component and present no financial risk (Boreiko et al., 2019), namely, utility function.

The blurs on the traditional distinctions between currencies, financial assets and consumption goods (Boreiko et al., 2019) and lack of specific regulation may have contributed to fraud and scams in the TS market and highlight the role of regulation, information disclosure and trust (Samieifar & Baur, 2020).

For example, most regulatory authorities in the EU are waiting for the new TS trends to unfold before taking action, allowing developments in virtual tokens. Practically all regulators have issued warnings to potential investors in TSs, educating investors on the associated risks and the potential absence of legal protection (Vandezande, 2020; Cruz, 2019).

Currently, the major governance challenge for the TS ecosystem is the imbalance of power between investors and issuers that retain total control of the funds raised after a successful TS (An & An, 2020).

The need for governance improvements is so dire, as to protect token buyers from scams and to mismanage of funds, that market participants are experimenting innovative solutions to the problem, like escrow accounts, polls among TSs pledgers, self-regulation protocols, KYC procedures and whitelisting (Giudici & Adhami, 2019; An & An, 2020), incurring longer duration of the TS (Momtaz, 2020), while awaiting a probable regulatory action (Gikay, 2018; Truby, 2018; Ruchkina & Ermakov, 2019; Cruz, 2019).

The existence of TS regulation in European countries, such as Switzerland and UK, was defined positive in terms of further development of the relevant regulation in the financial market (Ivashchenko et al., 2018; Santiago et al., 2019).

The most representative countries are the United States and Russia. The UK, Singapore and Switzerland were also very popular in terms of jurisdiction of origination for TS ventures (Giudici & Adhami, 2019; Huang et al., 2019). Malta and Singapore have left no stone unturned in attracting businesses by providing a specific regulatory and administrative framework for TSs (Tiwari et al., 2020).

Empirical study reveals that TSs take place more frequently in countries with developed financial systems, public equity markets, and advanced digital technologies, as in the case of most developed western economies (Huang et al., 2019). In addition, launching a

TS in a tax haven country gives more probability of “success” regarding raised amounts (Cruz, 2019).

The presence of such a wide variation in the regulatory approaches and a continued lack of clarity at the global level makes it essential to have a set of guidelines to assist investors, issuers and regulators (Tiwari et al., 2020).

#### **6.1.4. Marketing and Social Media**

The use of social media serves as relevant marketing and communication channels for announcing TSs and distributing information about the underlying tokens and project development progress (Chanson et al., 2018). The platforms are seemed by investors as a key element to build awareness and increase the chances for a successful TS (An & An, 2020; Hartmann et al., 2018, Domingos et al., 2020).

Some studies investigated how digital social capital and its multiple facets are related to the success of a TS and found that out of the cases analysed, almost 90% had a website dedicated to the TS, about 50% of them had a Twitter presence and 46% had both. The availability and visibility of the website were shown to be the most crucial part of the digital presence (Perez et al., 2020; Hartmann et al., 2018).

Another study pointed out that having a high score on rating websites, such as ICObench, tends to be more successful in fundraising and experience more post-TS project success (Roosenboom et al., 2020).

As a result, social media presence reduces the information asymmetry, and uncertainty around the project (Liu & Wang, 2019; Domingos et al., 2020) and marketing is the fundamental requirement for determining the success of a given project (Spinedi et al., 2019).

## **6.2. Implementation**

Implementation is the phase where visions and plans become a reality. Usually, in TSs, it consists of pre-sales, sales and after-sales.

Pre-sales measures include incentives to early adopters by issuing tokens at a discount. Pre-sales are frequent, and according to empirical studies, 33% to 65% of the ventures choose to offer some tokens to early investors before the actual sale (Fisch, 2019;

Benedetti & Kostovetsky, 2018; Adhami et al., 2018; Momtaz, 2020).

Adhami et al. (2018), Roosenboom et al. (2020) and Momtaz (2020) agree that this phase serves to obtain information from potential investors about the fair price of the token and what is the possible total funding amount, which can be used to increase the effectiveness of the actual sales phase. Additionally, Domingo et al. (2020) found that, in some cases, a pre-sale period seems to be positively related to the success of a TS. However, such a study shows that having a pre-sale period negatively affects the returns of TSs. Momtaz (2020) found that the existence of a pre-sales phase reduces the total funding amount raised in the actual TS.

These pieces of evidence suggest that investors are aware of these risks, so that offering bonuses, particularly higher ones, predicts failure and lower first-day returns on the secondary market (Liu & Wang, 2019).

After the token selling phase, it is time for the project development, under the economic metrics and parameters previously established. During this phase, it is essential to maintain a real-time checking of the token market and intervene, if needed, by issuing or buying token to guarantee the value of the issued token (Spinedi et al., 2019).

A critical step for every cryptocurrency is to be listed on a token exchange after the selling phase. The listing ensures that the tokens can be traded and ensure liquidity for investors (Momtaz, 2020). Top tier exchanges are typically very picky with accepting any new coin on their exchange due to the higher risk of scam projects in the unregulated cryptocurrencies (Doe-Bruce, 2019).

For the majority of the cryptocurrencies, the journey ends with a delisting that is effectively a project's death as there is no platform for the currency to be exchanged (Momtaz, 2020).

## **6.3. Organisation**

### **6.3.1. Management Team and Advisors**

Likewise traditional markets, it is common for TS to include the disclosure of the team involved, and there is a body of evidence that examined the relationship between this factor with the success of a TS.

Momtaz (2020a) examined CEO loyalty's implications for under-pricing, gross proceeds and operational efficiency and found that loyal entrepreneurs raise higher funding volumes, conduct the TS more thoroughly, complete the TS in a shorter time and are significantly less likely to fail.

However, Giudici and Adhami (2019) found that leadership by individuals with a more robust educational background or longer tenures is not significantly correlated with fundraising success, while there is some evidence that having occupied top managerial roles in the past is positively valued by investors.

There is also evidence that team members and advisors are essential, but not in terms of quality but in terms of quantity, meaning that larger numbers of project team members positively impact project performance and enhance the reputational capital (An & An, 2020; Roosenboom et al., 2020; Giudici & Adhami, 2019).

Advisors contribute to the success of a TS either through the expertise and network they bring or through a signalling effect, due to the perception that projects that attract more advisors tend to be of high quality (Liu & Wang, 2019).

Therefore, the quality of the management team should have a strong positive (or negative) effect on the success (failure) of TSs projects (Momtaz, 2020).

## **6.4. Controlling**

Control is a task of management which checks for errors in order to take corrective actions. It is done to minimise deviation from standards and ensure that the stated goals of the organisation are achieved in the desired manner.

### **6.4.1. Performance Measurement**

All organisations measure performance at some point. Performance measurement is one of the foundations of business excellence that encourage the use of performance measures, to ensure that outcomes are aligned to strategy.

In this particular case, usually, it happens after the investment where the ultimate goal of a TS is to succeed. A few different measures of performance were identified in the scientific literature, such as the amounts raised, under-pricing and first-day returns, liquidity and trading volume of exchange-traded ICOs (Momtaz, 2020; Roosenboom et al., 2020;

Fisch, 2019; Amsden & Schweizer, 2018; Adhami et al. 2018; Benedetti & Kostovetsky, 2018).

Under-pricing is extensively studied in the IPO market, and it is the phenomenon whereby an asset's price is set too low on issuance. As a result, the price adjusts to its market value on a listing day, and under-pricing is indicated by a significant first-day return (Loughran & Ritter, 2002). Theories for TSs under-pricing mostly follow in line with those for IPO under-pricing (Kher et al., 2020).

Momtaz (2020) found that investors earn on average 8.2% on the first day of trading of tokens. However, about 40% of all TSs destroy investor value on the first day of trading. Momtaz (2020) also found that management quality and the TS profile are positively correlated with the funding amount and returns, that 21% of all tokens that get delisted from a major exchange platform. In contrast, highly visionary projects have a negative effect and found that the TS market is highly susceptible to such environmental shocks, resulting in substantial losses for investors.

## **6.5. Contingency Factors**

Asymmetric information, lack of regulation and uncertainty on TSs are the critical challenges on the future of this innovative funding mechanism.

Asymmetric information, also known as "information failure", occurs when one party to an economic transaction possesses greater material knowledge than the other party. Significant information asymmetries exist in the traditional entrepreneurial finance that difficult entrepreneurs' access to capital (Liu & Wang, 2019; Boreiko & Risteski, 2020).

Studies revealed that for entrepreneurs it is important to make the TS as transparent as possible (Hartmann et al., 2018), devote efforts towards quality signalling and, in doing so, making them more likely to comply with expected future regulations, reducing asymmetric information and risk of moral hazard (Boreiko & Sahdev, 2018; Cruz, 2019; Fisch, 2019; Momtaz, 2020b). However, not all disclosures are quality disclosures, since entrepreneurs tend to exaggerate information disclosed in technical white papers, which investors often fail to identify (Momtaz, 2020).

The novelty of this type of financial operation and the current lack of specific regulation means that the success of a TS can be understood in a range of ways (Domingos et al., 2020; Spinedi et al., 2019). Many studies proposed that the development of a legislative

framework, the requirement of registration or an audit for TSs projects will help (Cruz, 2019; Tiwari et al., 2020).

## Chapter 7

### Conclusion

This chapter summarises the relevant conclusions about Token Sales. Presents the contributions and difficulties found during this study, and ultimately, suggests some topics for future research.

#### 7.1. Overview

Token Sales emerged as an innovative way of raising capital for startup projects. The main advantage of this mechanism is to reach a wide range of investors worldwide and obtain high liquidity on the investment while it is considered as a high-risk investment.

Some challenges need to be overcome before to implement a TS, such as the need to comply or not with regulatory bodies (depending on the nature of token), and robustness on the business model to transmit confidence for investors.

There is a consensus that close engagement between market innovators and regulators could help in defining the right strategy and format in order to accelerate TS widespread.

It is essential to mention that due to the novelty of the subject, TS is underdeveloped and controversial with the potential disruption of the established global funding, but tends to be irreversible due to the benefits it presents.

Collaboration between all the stakeholders involved must be based on a continuous iteration process allows testing out the development of this particular branch of entrepreneurial finance.

As discussed in this study, after analysis of multiple studies, it can be concluded that the key factors that contribute for a successful token sale are: a robust token design, an experienced management team, the presence of advisors and consistent team workers, disclosure of high-quality information on the white papers that support the token sale, a strong presence in social media, compliance with legal and regulatory affairs and compelling marketing and sales strategy. Consequently, reducing contingency factors such as asymmetric information, moral hazard and investment uncertainty.

## **7.2. Contributions**

This research provides a systematic literature review of token sales, covering 64 selected scientific journal articles. Four critical elements of a token sales management based on overarching themes have been identified within the body of literature (strategy/planning, implementation, organisation and controlling) and the specific findings relating to such key elements have been synthesised.

The results of our systematic review represent a beneficial knowledge base from a multitude of academic studies, and they may help identify various approaches to improve the domain on the topic further.

## **7.3. Difficulties**

Many quantitative studies brought contradictory outcomes, mostly due to insufficient and inconsistent existing information on TS data. For example, information is widely dispersed on the Internet, and most databases often include only partial information, ending in different samples. The few existing case studies mostly were applied on single or few cases, or few jurisdictions validation, leading to a cautious generalisation.

There is also a gap in the potential impact of TS on the Entrepreneurial Finance landscape, making the future still uncertain and suggesting that more observation and experimentation are needed in order to consolidate it as an efficient and reliable fundraising mechanism.

## **7.4. Future Research**

Due to a very short time span of this new phenomenon, some future research is suggested to (i) explore in-depth the motivations and best practices to build or adapt the business model, business plan and the communications plan required in a TS; and (ii) understand its nature and potential for innovation, in other words, if TSs have the capability to complement or completely substitute the existing market.

The existing literature points to a lack of regulation to prevent risks for the different stakeholders around cryptocurrencies, suggesting that future research should pay more

attention on how to regulate the ICO and cryptocurrency markets, and how it would be possible.

Contradicting the premise of disintermediation, some interesting movements are observed in the intermediation market. In this sense, it would be of interest to study how intermediation services are being moulded after this mechanism and what would be the new role of intermediaries on the evolution of token sales.

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