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Blockchain-enabled emerging business models

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1 Introduction

"As with all major shifts, there will be winners and losers. But if we do this right, blockchain technology can usher in a halcyon age of prosperity for all"
(Blockchain revolution, Don & Alex Tapscott)

This study has its root in the conviction that blockchain technology, even if today isn't mature enough, could really lead the world to the second era of the internet, the internet of value, turning into reality some promises not realized during the first era of the internet, the internet of information.

Today, almost all services are essentially massive databases, specifically closed databases, that have proliferated during the first era of internet. Even though the many benefits they have brought, closed databases have led to significant inefficiencies, preventing the realization of various hopes that have been dashed during the first era of internet.

Among these hopes, there are some that could be closer to the realization thanks to blockchain technology.

First, it should be remembered that on earth there are two billion of people that are still unbanked and without any access to financial services because they cannot provide sufficient guarantees.

Second, the implementation of true "sharing economies". As correctly stated by Don Tapscott, the companies that are leading the market of the sharing economies, such as Airbnb and Uber, "are not really sharing. In fact, they're successful precisely because they don't share. They aggregate service together, and then they sell them" [1].

Third, get back data under the owner control. Today, all too frequently personal data have been sold from one company to another, using personal data to profile the customers. In this regard it may be interesting mention Andrew Lewis "If you are not paying for it, you're not the customer; you're the product being sold" [2].

Fourth, today, the ordinary content creators don't receive a fair compensation, or sometimes not even a compensation at all, for the value created for the community. In fact, social media platforms such as Facebook and Twitter exploit the contents created

within the platform, which grows in value for every content added, without offering any reward to who has created the content.
Blockchain technology, enabling the shift from the internet of information towards the internet of value, is capable to empower solutions to the problems above-mentioned. That's because, for the first time in internet history, blockchain allows to establish trust between parties that don't know each other, without resorting to a third authority. The essence of blockchain innovation is the revolution on trust.
How blockchain is able to revolutionize trust and the study of the emerging business models enabled by blockchain, are the purposes of this thesis.

Concluding these introductory remarks, this thesis is structured in seven chapters.
Chapter two provides the so-called "state-of-the-art", the theoretical background to the thesis work. This chapter is divided into two parts, the first one is devoted to the introduction of blockchain technology and to an analysis of the current inefficiencies caused by closed databases. Then is provided a technical explanation of Bitcoin, the first implementation of a blockchain, by presenting how it's able to establish trust between parties that don't trust each other, solving a well-known problem of computer science, known as "Byzantine generals' problem". The second part is devoted to the introduction of the concept of business model and the tools that will be used to analyze the archetypal business models.
Chapter three presents a methodology overview, in line with the case study practice adopted by ISMB team in business-related consulting activities. In this chapter is provided a motivation to the choice of a qualitative research, an explanation to the multiple cases approach. Furthermore, is presented the sampling activity, following a mixed approach and the sources examined to perform the case studies and the cross-case studies analysis.
Chapter four answers to the first research question, providing a proprietary framework along which the ecosystem can be mapped. Moreover, the already existent ecosystem maps have been analyzed.
Chapter five answers to the second research question. For each case of the short list, is provided an analysis, with a particular observation to the cases for which the whitepaper was available. Then, the cases have been mapped using the 2x2 matrix elaborated in chapter four. This activity resulted in the identification of the archetypal actors acting within the blockchain ecosystem.

Chapter six answers to the third research question. Performing the cross-case analysis, twenty potential archetypal business models has been identified. However, only thirteen out of twenty were mature and sustainable enough to be considered true archetypal business models. The thirteen archetypal business models have been analyzed and descripted. For a better communicability it has also been used the business model canvas to analyze the archetypes.

Finally, chapter seven provides some conclusive remarks on the maturity stage of this new technology. It has been analyzed the market composition, distinguishing between infrastructure and applications and their respective market capitalizations. Lastly, the chapter introduces some open issues as directions for future research.

2 State of the art

2.1 Blockchain

2.1.1 The concept of Blockchain

The expression “blockchain” is a quite neologism, coined around the 2014, even if the concept of cryptographically secure chain of blocks dates back to 1991 [3] with the article “How to time-stamp a digital document” (Haber & Stornetta, 1991). In 2008 the first blockchain, named Bitcoin, has been created by a cryptographer, or, most probably by a group of cryptographers, under the pseudonym of Satoshi Nakamoto. This new technology has been presented as “A peer-to-peer electronic cash system” (Nakamoto, 2008b), but the two words, block and chain, has been used separately in the whitepaper. Who first coined the term blockchain is uncertain, but the term have become known to the public domain after the book of Don and Alex Tapscott called “Blockchain revolution” (Tapscott & Tapscott, 2016). It is interesting to note that after 2016 this term gained attraction also to practitioners. During the 2015, the Gartner Hype Cycles [4] still refers to this technology as “cryptocurrencies”, while since 2016 [5] Gartner stared to refer to “Blockchain”. The latest version, of 2017, of the Gartner Hype Cycle [6] for emerging technologies depicts (Figure 1) Blockchain in the declining trajectory of the peak expectation.

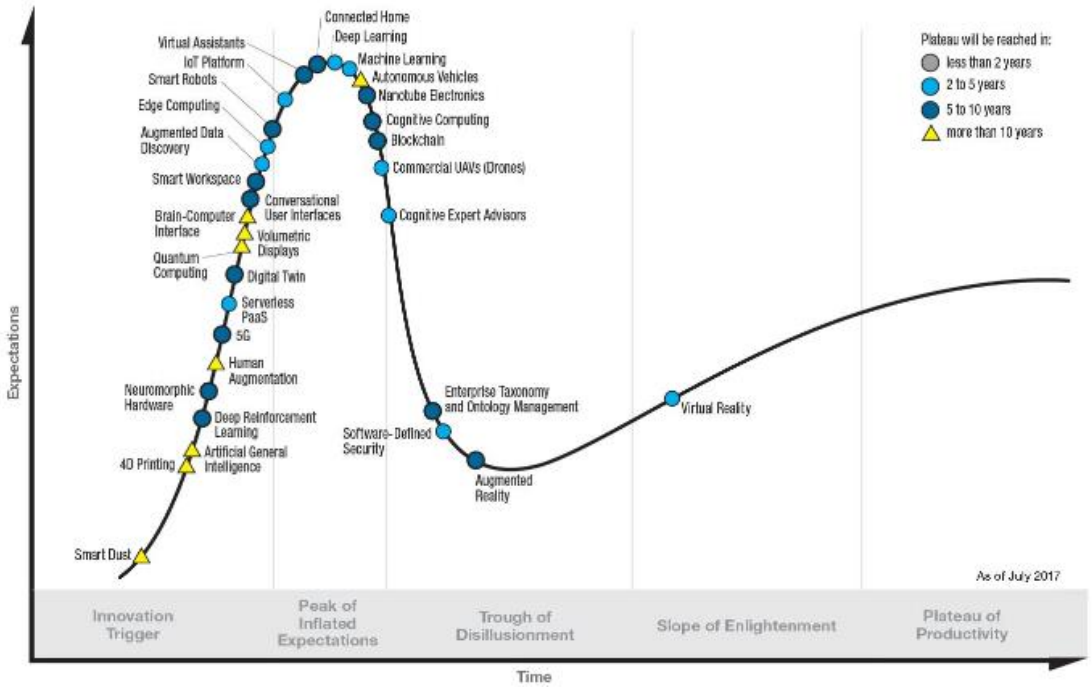

Figure 1 - Gartner Hype Cycle for emerging technologies 2017 - Source: Gartner

Among the various definitions of Blockchain, some of them, proposed by some most influent actors in blockchain environment, are listed below (Table 1):

Table 1 - Blockchain definitions

Authors	Source	Definition
Don Tapscott	McKinsey [7]	"The blockchain is basically a distributed database. Think of a giant, global spreadsheet that runs on millions and millions of computers. It's distributed. It's open source, so anyone can change the underlying code, and they can see what's going on. It's truly peer to peer; it doesn't require powerful intermediaries to authenticate or to settle transactions".
Goldman Sachs	Goldman Sachs [8]	"At its heart, a blockchain is a record of transactions, like a traditional ledger. These transactions can be any movement of money, goods or secure data. Blockchain is designed to store information in a way that makes it virtually impossible to add, remove or change data without being detected by other users".
Investopedia	Investopedia [9]	"A Blockchain is a digitized, decentralized, public ledger of all cryptocurrency transactions. Constantly growing as 'completed' blocks are recorded and added to it in chronological order, it allows market participants to keep track of digital currency transactions without central recordkeeping".

All the afore-mentioned definitions are clear and almost exhaustive, hover there is one definitions that has not been mentioned yet. This definition has been proposed by Giacomo Zucco (Table 2) during an interview for Inside Blockchain [10] in 2017. Even if this definition is less rigorous, strict and technical compared to the other already proposed, is considered an interesting first approach in order to gain a good comprehension of what blockchain really is and really does:

Table 2 - Blockchain definition - Source: Giacomo Zucco

Authors	Source	Definition
Giacomo Zucco	Inside Blockchain [11]	"Blockchain has been described in numerous different ways, but, actually, it's simply a trustworthy clock, managed by thousands of parts around the world, without a central identity able to change the time. It's defined as a clock because its aim is to certify the relative timeline and the order of some messages".

2.1.2 The side of the Internet that was missing

Analyzing the latest definition, Blockchain it's defined as a clock, meaning that blockchain primary purpose differs from storing and sending information, internet already does this; it also differs from certifying the information source, because cryptography with digital signature does this; its purpose is to certify the relative timeline and the order of some messages [11]. Thanks to this potentiality, blockchain enables distributed network not only to exchange messages and to exchange signed messages, something that was already possible, but enables them to exchange signed messages agreeing on their order. In this way, the blockchain not only is able send information, as was already possible in internet without blockchain, but it can transmit, for the first time, value [11].

The difference between information and value is significant: information is something that it can be sent, it multiply endlessly every time it has be sent; value, on the other hand, is something that if someone gives it away, he loses it, and so the receiver, is able to give it away and, in turn, losing it. Therefore, value is a scarce resource [10].

Before blockchain, scarceness didn't exist in the digital world. Blockchain was the missing part of internet needed to bring the scarceness of the physical world into the digital world. Internet is already disrupting different markets, but it couldn't do it best in trades and financial markets, because on those doesn't occur only information exchange, but also value. Therefore, internet was constrained, because it had to rely on central third parties. With blockchain, for the first time, it is currently possible to have an internet of value which is unmodifiable, uncontrollable and irreproachable [10].

The latest point is very important, because it represent the real disruption that Blockchain could carries.

For a better understanding of this remark, it could be helpful to take a step back and point out how transaction occurs between two parties. In every transaction dealing with a counterparty, is encountered an innate risk, specifically named “counterparty risk” that one counterparty doesn’t fulfill the obligations. Generally, counterparty risk is composed by three elements: default risk, replacement risk and settlement risk (Beier, Harreis, Poppensieker, Sojka, & Thaten, 2010).

Two main types of transaction occur between two counterparties:

- The first, basic, way to perform a transaction, takes place when it subsists trust between the two counterparties. In this case, counterparty risk would be overstepped because both counterparties trust each other, with a reasonable assurance the transaction would be smoothly completed.
- The second possibility is when counterparties don’t trust each other. In this case, the only way the transaction has, in order to be performed, is to rely on a third party that acts as guarantor [12].

Blockchain enables to establish mutual trust between two counterparties that don’t trust each other without resorting on a trusted central authority. This happens because for the first time, blockchain is able to prevent and overtake the trust problem, which is commonly referred in informatic jargon the “double-spending problem” (Karame, Androulaki, & Capkun, 2012).

In order to provide a better explanation of the double spending problem, it could be helpful to rely on an easy exemplification: If someone send a document to somebody else, there is nothing to prevent the sender to keep to himself a copy of the document and later send the same document a second time, to a third person. This problem probably could not represent a problem for a document exchange, but when it comes to value exchange that would be the main issue.

Before Bitcoin, the first implementation of blockchain technology, the double spending problem could have been prevented only relying on a trusted third authority.

At this stage there could certainly raise a doubt: Why the wish to eliminate the third central authorities has risen?

The answer to this question is left to the following paragraph, which will deal with the inefficiency caused by the centralized third parties.

2.1.3 Closed database inefficiency

As mentioned in the previous chapter, most of transactions belong to the second group, that is between counterparties which doesn't trust each other, hence there's a need to rely on third parties, the so-called "intermediaries" (Tapscott & Tapscott, 2016), to establish trust in the economy. These intermediaries, such as banks, social media companies, e-commerce platforms, credit card companies and more, are, in their core, massive databases, specifically closed databases.

To avoid and prevent security problems, closed databases suffer from different inefficiencies (Iacob & Moise, 2015), of which the following has been considered the most relevant:

- Regulated access: by design a closed database has a regulated access, setting to the authority the right to decide who can be in and who cannot. Perhaps it may seems a marginal problem, but it must be remembered that on earth there are two billions of people [13] that are still unbanked and without any access to financial services because they cannot provide sufficient guarantees (Underwood, 2016).
- Trust must be placed in the guarantor: generally, the guarantor is institutional, such as institutional banks, notaries, land registry other institutions falling under the government or corporate, such as private financial institutions, e-commerce platform and payment circuits. However, this is a vicious cycle, because "Quis custodiet ipsos custodes?".
- Interoperability limitations: taking in account the current lack of a unique transversal platform in which trust can be establishes, the trust and the reputation determined into one platform cannot be exported into another. Let's consider a user, who is investing effort, time and resources on building reputation into the platform A. If the platform A collapses, there is no practical way to export the reputation into platform B.
- The intermediary takes a significant share of value: From the value generated by the interaction between two counterparties, a large portion is internalized by the intermediary (Slee, 2017).

The purpose of the first two chapters was to introduce the reader to the blockchain environment, to clarify why blockchain is a relevant technology and which inefficiency it can solves. At this stage, the next question demanding an answer is "how?". The next

chapters are intended to provide a technical explanation on how blockchain is able to solve some of the afore-mentioned problems.

2.1.4 Bitcoin: the first use of blockchain

In this section, it has been chosen to present the first realization of a blockchain, Bitcoin. The other blockchains beyond Bitcoin has been presented in a subsequent paragraph (paragraph 2.1.6).

As mentioned before, Bitcoin whitepaper has been published in 2008 by Satoshi Nakamoto, while the genesis block has been established on January 3rd of 2009 [14].

Bitcoin is a collection of different concept and technologies, composed by the following essential elements (Antonopulos, 2014):

- A decentralized peer-to-peer [15] network of computers called nodes, which is able to reach the consensus, enabled by the Bitcoin protocol.
- A distributed public transaction ledger.
- A decentralized deterministic currency issuance and consensus algorithm.
- A decentralized transaction verification system, named transaction script.

Technicians refers to Bitcoin meaning the protocol and to bitcoin meaning the unit of currency, that is a digital property created inside the Bitcoin protocol. However, in non-technician areas, the word blockchain is used to refer to the entire protocol [16].

One of the key ingredient of Bitcoin is cryptography, specifically Bitcoin heavily relies on Cryptographic hash functions (i.e. SHA-256) [17] and Asymmetric cryptography public/private key pair (i.e. ECDSA Elliptic Curve Digital Signature algorithm) [18].

The bitcoin currency is not physic, it can only exist as a public ledger documented transactions [16]. A bitcoin transaction is defined as a record, on the public ledger, informing the network of a transfer of bitcoins from one owner, a bitcoin address, to another owner. The ownership of bitcoins is established through cryptography, relying on digital signatures and digital keys (Antonopulos, 2014).

A bitcoin transaction is composed (Figure 2) by the amount exchanged plus the receiver's bitcoin address. In order to empower the transaction, the sender has to "sign" the transaction with his own private key. Then the transaction and the owner's public key, generated from the private key thorough a one-way cryptographic function, is broadcasted to the network. After this has come about, anyone on the network is able to verify that: the private key has been used to sign the transaction and the signature has not been forged;

the transaction amount and the receiver's address has not been tempered; the amount sent is at sender's disposal.

Figure 2 - Example of a bitcoin transaction - Source: Blockchain info

It is interesting to note that a bitcoin address is not connected with a specific natural person, like in a usual bank account, but with anyone who holds the private key. In this sense, as Ferdinando Ametrano said, "bitcoin is actually pseudonymous, not anonymous, because all the transaction that occurs are published into the public distributed ledger, but the public key doesn't provide any personal information about the private key's owner" [16]. Moving on the bitcoin transaction process, after the necessary audits on the transaction broadcasted to the network, transactions are bundled together into blocks which are "chained" together in sequence to form the blockchain. The action of chain together two blocks requires a significant amount of computing power, but only a small amount of computation power to verify as proven. The process of chaining blocks together is named "Mining".

Mining serves two purposes in Bitcoin (Antonopulos, 2014):

- Mining creates new bitcoins in each block, through the "coinbase" transactions. The amount of bitcoin generated is fixed and diminishes with time, with a maximum cap of 21 M (Figure 3).

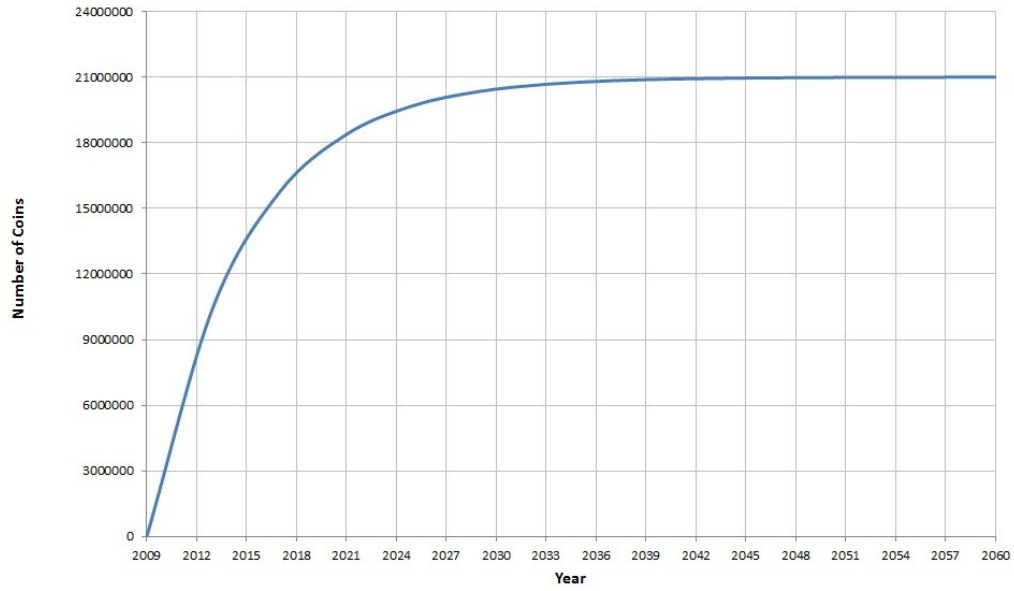

Figure 3 - Bitcoin supply over time - Source: Quora

- Mining establishes trust by ensuring that transactions are confirmed only once enough computational power has been committed to the block that contains them. More blocks are reflected in more computations, consequently more trust. Currently, the "hash-rate" (Figure 4) (March 2018) is 26162835 Th/s, which is 100000 times more powerful than the most 500 supercomputers in the world.

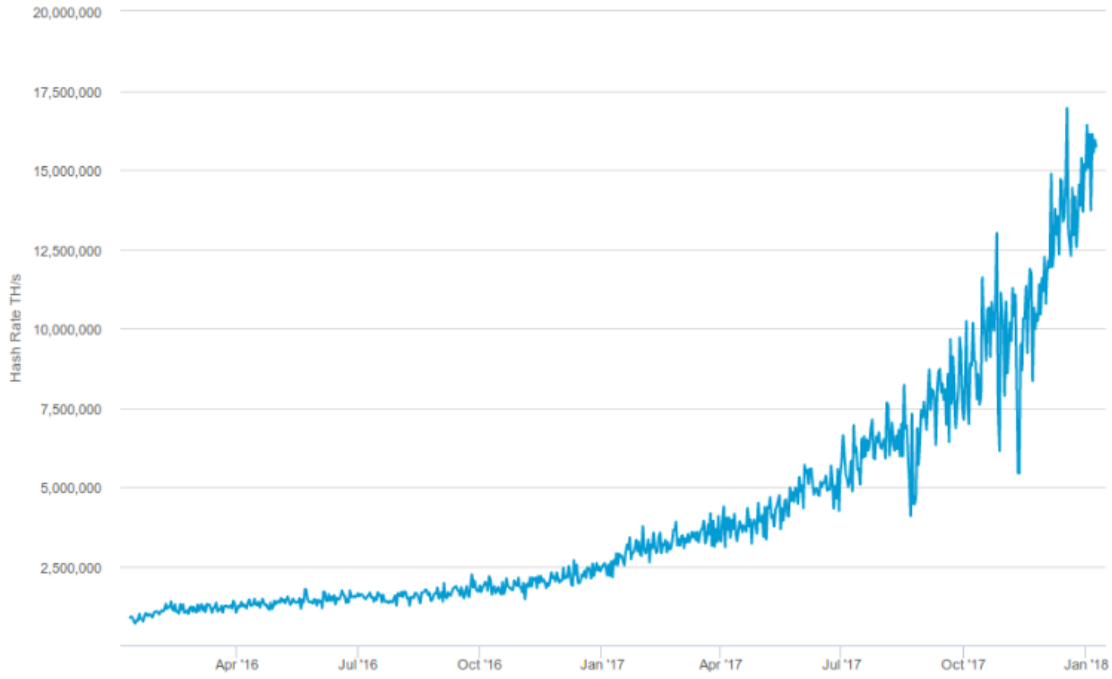

Figure 4 - Bitcoin hash-rate - Source: Blockchain info

After answering the question, “Why mining occurs?” the next question demanding an answer is “how?”.
The mining algorithm consists in (Antonopulos, 2014):

- Bundling together into one block the transactions broadcasted on the network.
- Verifying that all transactions in the block are valid.
- Selecting, on the longest blockchain, the latest block and inserting the hash-value of its header into the new block.
- Try to solve the “Proof-of-work” computational problem for the new block. If a solution to the proof-of-work problem is found, the block is added to the local blockchain and broadcasted to the network.

The proof-of-work is the computational problem that the miners have to solve in order to gain the right to broadcast the block on the peer-to-peer network. The procedure consists in three steps [19]:

- Increment an arbitrary number in the block header named nonce.
- Produce a hash value of the block.
- Check if the hash of the block is less than a predetermined target value. This target value is named “network difficulty”. Interesting to note that as more miners join, the rate of block creation will increase. As the rate of block creation increase, the mining difficulty rises to compensate, which pushes the rate of block creation back down. That’s because the creation of new blocks must take an average of 10 minutes, a time specifically selected by Satoshi Nakamoto.

If the hash value of the block header is higher than the target value, the block will be rejected by the peer-to-peer network.
If the hash of the block header is less than a target value, satisfying the constraint, the block will be accepted, and it will be chained to all the previous block already present into the blockchain (Figure 5). Solving the proof of work problem requires a lot of resource, in terms of the requirement of specific hardware and in terms of energy consumption. To incentivizes participants to commit their resources in mining, Bitcoin provides a reward in each successfully mined block plus the transaction fees of the transactions contained in the new block [19].

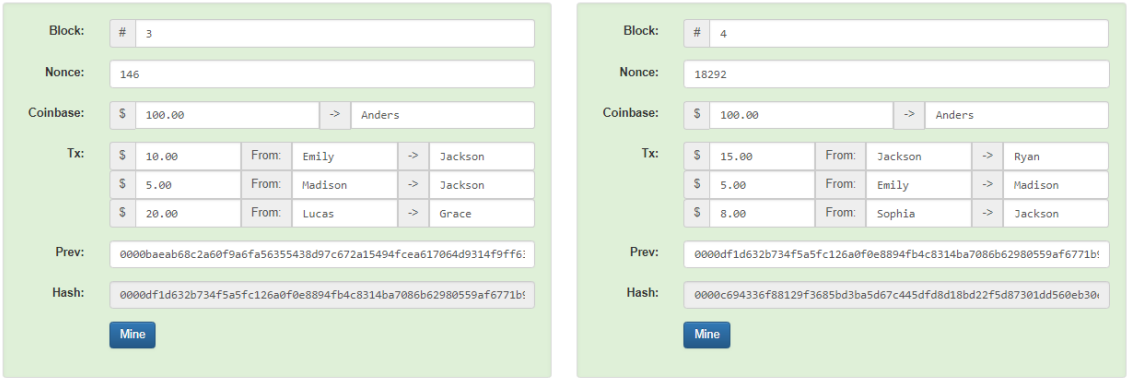

Figure 5 - Example of two blocks connected - Source: Anders.com

The purposes of this paragraph were to show how Bitcoin blockchain works, to introduce the main characteristics of a blockchain and to agree with the readers on terminology, trying to get him acquainted with some essential concepts which will be taken up during the next chapters.

It's clear, after the technical explanation, how bitcoin built, for the first time, an unmodifiable, uncontrollable and irreproachable public shared ledger, whose every peers have access.

The next step is to understand how this public unmodifiable shared ledger is able to revolutionize trust, establishing it in a decentralized peer-to-peer network where nobody trusts anybody. Obviously, in fact, in a network in which occur value exchange, there is a significant incentive for peers to act dishonestly, therefore every peer has to assume that other peers can have a malevolent behavior. In order to understand how bitcoin gets rid of this problem, is being presented the "byzantine fault tolerance" problem.

2.1.5 Byzantine fault tolerance

The problem of creating and implementing a distributed but trusted system is not a new one in computer science. The fundamental problem in distributed computing and multi-agent systems is to achieve overall system reliability considering the presence, by default, of a certain amount of faulty processes [20]. This consensus problem has been conceptualized for the first time in 1982 by Marshall Pease, Robert Shostak and Leslie Lamport, under the name of "Byzantine generals' problem" where actors must agree on a concerted strategy to avoid the system failure, but some of the actors are unreliable (Lamport, Shostak, & Pease, 1982).

An abstract of the original test is reported:

“We imagine that several divisions of the Byzantine army are camped outside an enemy city, each division is commanded by its own general. The generals can communicate with one another only by messengers. After observing the enemy, they must decide upon a common plan of action. However, some of the generals may be traitors, trying to prevent the loyal generals from reaching agreement. The generals must have an algorithm to guarantee that: all loyal generals decide upon the same plan of action and a small number of traitors cannot cause the loyal generals to adopt a bad plan” (Lamport et al., 1982)”.

If the number of generals is less than threes, two situations may occur:

- A lieutenant is a traitor (Figure 6):

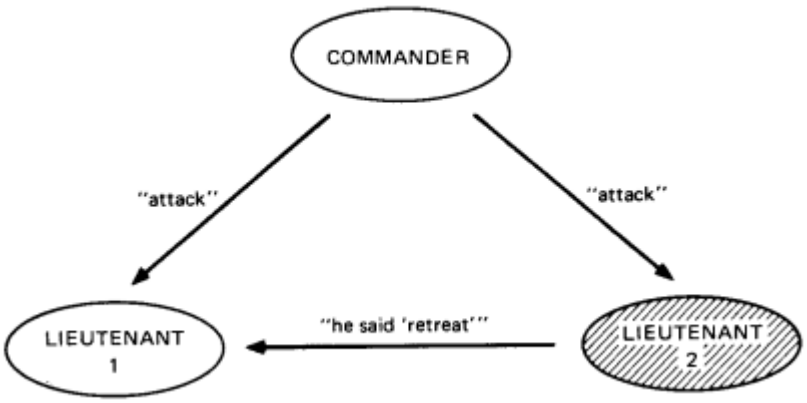

Figure 6 - Lieutenant traitor - Source: Byzantine general's problem

- Commander is a traitor (Figure 7):

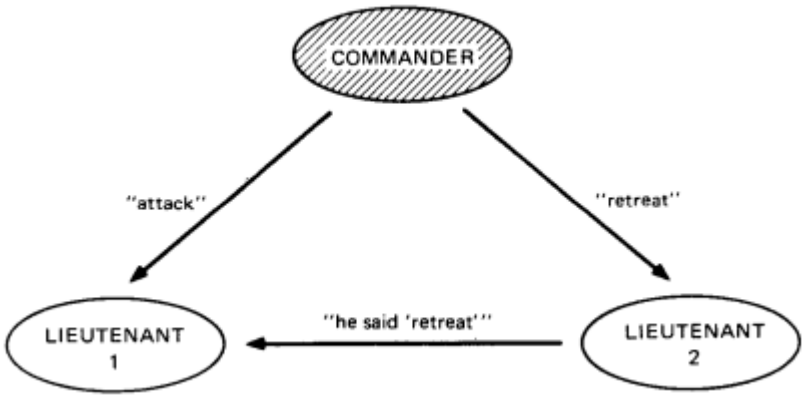

Figure 7- Commander traitor- Source: Byzantine general's problem

With only three generals, it can’t exist a solution in the presence of a single traitor. The messages to lieutenant 1 are in contrast and he cannot identify the traitor and act properly (Lamport et al., 1982).

As the number of parties in the system increase, the number of channel for communication and, consequently, opportunities for mistrust, increase exponentially [21].

- A lieutenant is a traitor (Figure 8):

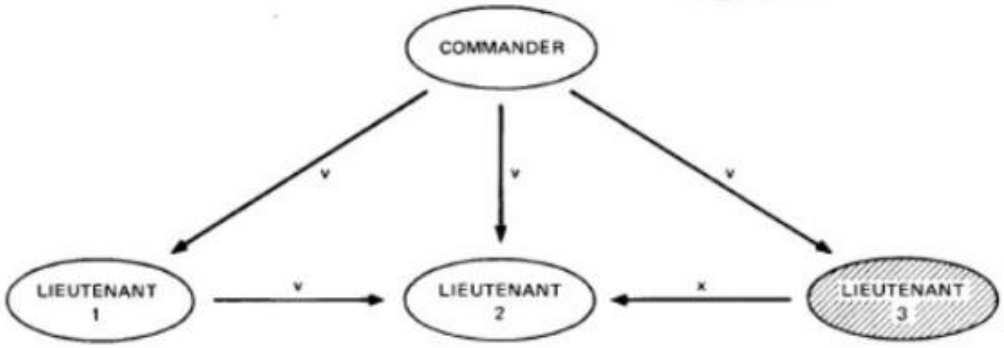

Figure 8 - Lieutenant traitor, more than three peers - Source: Byzantine general's problem

- Commander is a traitor (Figure 9):

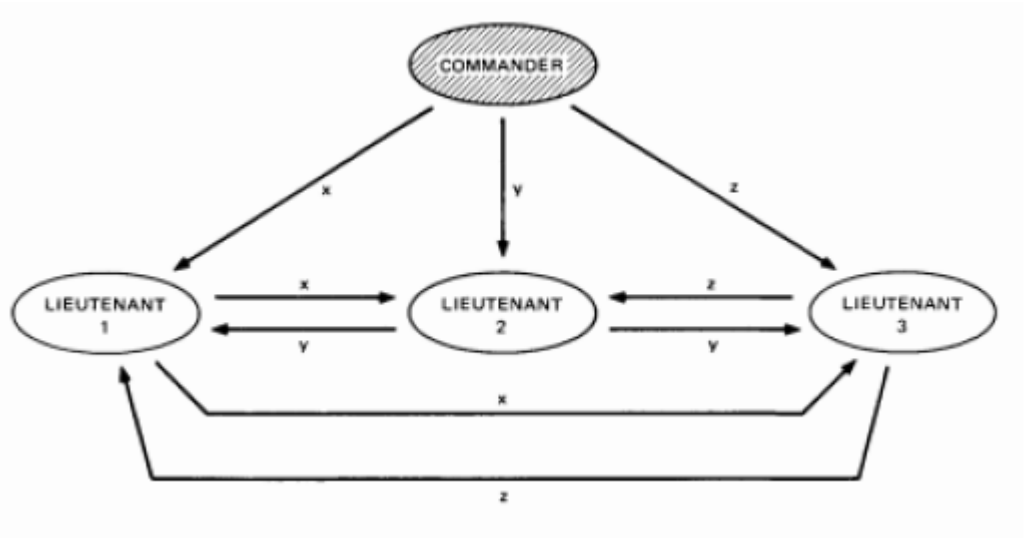

Figure 9 - Commander traitor, more than three peers - Source: Byzantine general's problem

The complexity of building consensus in a truly decentralized system with thousands of parties involved could be a significant problem [22].

It's clear now that the bitcoin blockchain is a manifestation of the "Byzantine generals' problem" in terms of how to keep the blockchain copies synchronized by all the peers, in a way that the transactions cannot be altered [19].

Once a Bitcoin node executes a transaction, i.e. it sends bitcoins from one address to another, it publishes the transaction on the peer-to-peer network. Then, all the other nodes in the world receive the transaction. At this point, however, the transaction is still seen as "unconfirmed" because it occurs the Byzantine Generals' Problem. If a malevolent peer

sent out two transactions displacing the same bitcoins to two different addresses, trying to double-spend the coins, the peers could have some trouble on which one they should accept. The mechanism used by Bitcoin to confirm transactions and solve the Byzantine Generals' Problem is the afore-mentioned process named mining.

Whenever a peer has to decide which blockchain version to accept, it has to choose the longest one, that is the one with the greatest combined difficulty. The shorter blockchains will be discarded.

Thereby, a traitor, i.e. malevolent node, isn't able to keep entering bad signals into the blockchain unless it o can keep producing the longest blockchain, which is statistically, impossible, unless he has enough hashing power to mine the majority of new blocks.

More specifically, Bitcoin solves the Byzantine Generals' Problem as long as honest miners own at least 50% of the hashing power in the system.

Therefore, it's crucial for any cryptocurrency ecosystem, that honest miners control more than 50% of the computational power in the peer-to-peer network or, alternatively, that no dishonest coalition of miners gains more than 50% of the computational power in the network.

After the technical explanation of the bitcoin blockchain, considered unanimously the paradigm of all the blockchain projects that followed, from 2009 to our days, in the next paragraph will be presented the evolution of blockchains beyond bitcoin.

2.1.6 Blockchain beyond Bitcoin

Since the launch of Bitcoin in 2009, they come out plenty of other projects with similar features, called altcoins seeking to improve any perceived limitations, coming up with upgraded versions of the bitcoin source code [23]. Later on, different developers and computer scientists started to study more thoroughly blockchains and in general distributed ledger technologies, coming to the conclusion that the potential benefit of the blockchains could have gone far beyond the economic field, and be extended to political, humanitarian, social and scientific domains (Swan, 2015).

Melanie Swan, one the major influencer within the blockchain environment, claimed that beyond the financial and economic benefits, the coordination, record keeping, and irrevocability of transactions through blockchain technology are features that could be as fundamental for the society progress as the "Magna Carta" or the "Rosetta Stone" (Swan, 2015).

With the purpose of providing to the reader a vision as comprehensive as possible, it will be introduced a distinction, currently very popular, among the various blockchain

projects. This distinction has been supported by various blockchain influencers such as Don Tapscott, his son Alex Tapscott and Melanie Swan. Following this distinction, the different kinds of already existing and future activity's concepts in the blockchain domain have been decomposed in three different categories (Swan, 2015):

- Blockchain 1.0: the progenitor of the blockchain 1.0 category it can only be Bitcoin. The other projects, that belong to this categories, are basically deployers of cryptocurrencies in applications related to cash, such as currency transfer, remittance or alternative payment systems (Swan, 2015). As mentioned before, some cryptocurrencies are merely small modifications of the bitcoin protocol, while others are source of innovation by changing various key feature of the coin, such altering the issuance method to less energy intensive processes, improving fungibility and the privacy characteristics of the currency itself (i.e. Monero and Zcash), altering the monetary supply or altering the hashing algorithms or other protocol's parameters. In conclusion, despite the differences in protocols, the blockchain of all the projects within this category serves a dual purpose: Prove the permanence of all transactions against modifications and prevent the double-spending [24].
- Blockchain 2.0: if Bitcoin is the "champion" of the Blockchain 1.0 category, Ethereum is the "champion" of Blockchain 2.0. Projects within this category provides financials and market applications using blockchain not only for payments and cash transactions but also for stocks, bonds, crypto equity, titles and above all for smart contracts (Swan, 2015). The title of "champion" of this category it have been assigned to Ethereum because is the first implementation of the Blockchain 2.0 and the one with the major market capitalization (i.e. Ethereum is the second cryptocurrency for market cap, only behind bitcoin [25]). Ethereum has been launched in 2014 by Vitalik Buterin, Gavin Wood and Jeffrey Wilcke. The intent of Ethereum is to create a decentralized platform for building decentralized applications. The foundational layer is a blockchain with a programming language Turing-equivalent, named Solidity, enabling anyone to develop smart contracts and decentralized applications, with arbitrary rules for ownership and transactions (Buterin, 2015). Smart contracts represent the main innovation of Blockchain 2.0 category. The term "Smart contract" was proposed by Nick Szabo in 1994, and they can be described as cryptographic "boxes" that store value, in cryptocurrency, and only unlock it if specific conditions are met

(Buterin, 2015). They are autonomous computer programs that execute automatically once "signed" and conditions defined beforehand such as the facilitation, verification or enforcement of the performance of a contract [26].

- Blockchain 3.0: this category includes the D-apps (decentralized applications) running on top of a blockchain belonging to the Blockchain 2.0 category. Decentralized applications will be discussed thoroughly in the next chapters. For the time being is possible to define a d-app as a normal app with a generic front-end, but instead of relying on a back-end code running on centralized server, the back-end code runs on a blockchain 2.0 [26]. The domains of the d-apps can be numerous, such as: file storage, marketplace, financial services, social media, prediction market platform, government, art and others (Swan, 2015).

The other possible distinction, rather than consider the technology layers, categorizes the blockchain projects on the basis of the degree of openness. It has been detected, generally, three categories of blockchain-like database applications [27]:

- Public Blockchains: This category includes Bitcoin, Ethereum and all the other blockchains which implement an open, fully decentralized, borderless and permissionless blockchain. Everyone is allowed to participate the network, downloading the code and running a public node. Everyone is able to download the ledger, everyone is able to send transactions and to participate in the consensus process.
- Permissioned or Consortium Blockchains: This category includes, amongst other, Ripple, R3 and Corda. In permissioned blockchains the consensus process is controlled by a pre-selected set of nodes. The access to data on the ledger is generally open to everyone, however, sometimes, the access can be restricted to the participants [28].
- Private Blockchains: This category includes, amongst other, Monax and Multichain. In fully private blockchains the rights of participating to the consensus process and to participate the network is kept centralized to one organization [29].

Currently, there's heated debate among practitioners on how consider the latter two categories. Many argue that private blockchains and, in certain aspects, the permissioned blockchain too, would suffer the same fate of the Intranets, that have been superseded by the advent of Internet [30].

2.2 Business models

The second part of this chapter is dedicated to the description of the second component of this thesis, the concept of business model. The aim of the thesis, in fact, as evidenced by the title, is to analyze the emerging business model enabled by blockchain.

2.2.1 The business model notion

The definitions of business models taken from literature are numerous. One of the simplest and clearest is the one proposed by the book "Business model generation" (Osterwalder, Pigneur, Smith, & Movement, 2010): "A business model describes the rationale of how an organization creates, delivers and captures value".

The process of business model design is crucial as part of the business strategy, in fact finding a great idea is just the first step and not even the most challenging. It is essential, in determining the success of the project, to design the right business model to support the idea. There are, in fact, numerous examples where the same idea failed with one business model and succeeded with another [31]. The business model is a blueprint for the business strategy to be enforced through the organizational structure, processes and systems.

2.2.2 Business model tools

In order to study, apprehend and communicate the business models which will be examined throughout the thesis, it has been used the Business model canvas (Figure 10) (Osterwalder & Pigneur, 2010).

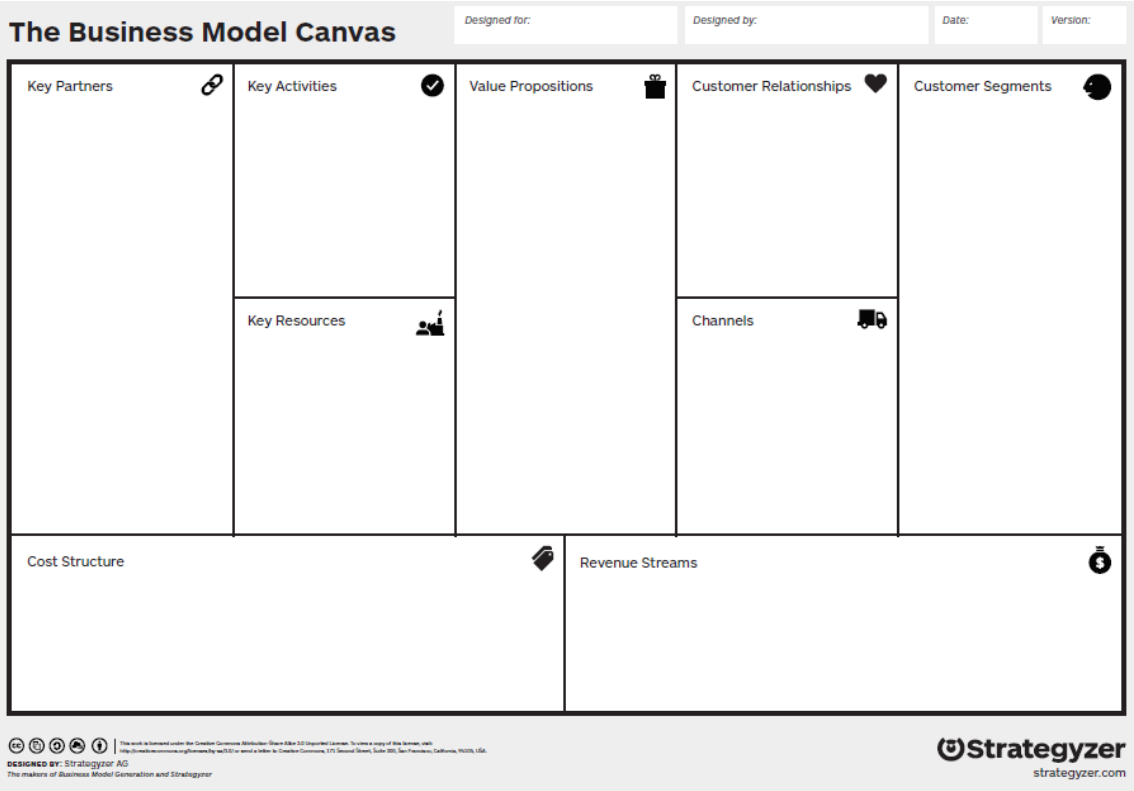

Figure 10 - Business model canvas - Source: Strategyzer

The business model canvas is composed by nine basic building blocks that show the logic of how money intends to develop the business, covering the four key areas of it: customers, offer, infrastructure and financial sustainability (Osterwalder et al., 2010). The nine building blocks are:

- Customer segments: this block describes the clusters of customers, both people and companies, an organization aims to reach and serve. In order to reach a better target, the costumers need to be grouped into distinct segments with common behavior, common needs and common financial status.
- Value propositions: this block defines the value that the organization deliver to the customers. In order to design an efficient value proposition, it's crucial to focus on the jobs pains and gains that matter most to each specific customer segments (Osterwalder, Pigneur, Bernarda, & Smith, 2014).
- Channels: this block defines how an organization communicates and reaches the customer segments in order to deliver them the value proposition. Channels represent customer touch points through which deliver products and services.
- Customer relationship: this block describes the types of relationship an organization establishes with each different customer segments, which significantly effects the overall customer experience.

- Revenue streams: this block defines the revenues that the organization generates by delivering the value proposition to the specific customers segments. There are two main types of revenue streams:
    - Transaction revenues: generated by one-time customer payments.
    - Recurring revenues generated by recurrent customer payments.
- Key resources: this block defines the main assets required by the organization to sustain the business model. The key resources enable the organization to develop, produce and deliver the value proposition to the customer segments.
- Key activities: this block defines the main activity an organization has to perform, in order to sustain the business model.
- Key partnership: this block defines the network of partners and suppliers required by the organization to sustain the business model. It's possible to recognize four different types of partnerships (Osterwalder & Pigneur, 2010):
    - "Strategic alliance": strategic partnership between non-competitors.
    - "Coopetitions": strategic partnership between competitors.
    - "Joint ventures".
    - "Buyer-supplier relationship".
- Cost structure: this block defines all cost incurred by the organization to sustain the business model.

2.2.3 Strategyzer's blogposts

In order to achieve a better understanding of business model and get some recommendation and tips to fill out the canvases (paragraph 6.3), all the posts present on Strategyzer's blog have been analyzed. [32]. The outcome of this study is a knowledge base included in the appendix (Appendix 2), where all the posts have been archived, catalogued and summarized.

2.2.4 Research questions

As a result of the state-of-the-art-study, it appears that, currently, the literature is almost exclusively devoted to technical issues. Moreover, previous studies portrayed blockchain-enabled business models in a fragmented manner, focusing only on few stand-alone exemplary cases in the limelight while losing sight of the 'big picture. The aim of this thesis is to integrate within this gap, providing not only a study upon the emerging business model enabled by blockchain, but meanwhile trying to keep one eye on the

global perspective, seeking to point out the future trend and to figure out how the ecosystem is evolving.

Therefore, it was started by addressing the following research questions:

1. What are the main dimensions along which the ecosystem can be mapped?
2. What are the main archetypal actors and their strategical positioning in the blockchain ecosystem?
3. What are the emerging business model enabled by blockchain?

3 Methodological overview

Looking at the thesis conducted, it's easy to find out the predominance of qualitative research methodologies.

Differently from the pure scientific paradigm, which provides for a strict quantitative research, in order to dive in the topic impartially, discovering an objective reality, on behalf of concreteness, qualitative methodologies adopt the interpretative paradigm (Cohen, Manion, & Morrison, 2007).

3.1 Systematic literature review

The underlying studies rest on two pillars: the first one is blockchain, the second is business modeling.

The study of these two topics occurred on two parallel rails which come together into the third research question (Chapter 6). In this section blockchain and business models merge together, identifying the archetypal blockchain-based business models.

3.1.1 Blockchain literature

Regarding the study of blockchain and distributed ledger technologies, necessary to answer to the research questions, a knowledge-base has been created, within which the sources studied, for the first approach, have been collected and catalogued (Appendix 3).

The different sources have been divided in three categories:

The first category called "Blockchain 101" gathers all the literature sources necessary to understand the technology. Within this category sources involving Infrastructure, d-apps, smart contract, forks can be found.

The second category named "Ecosystem" gathers the literature sources necessary to understand blockchain ecosystem, finding dimensions along which is possible to map the blockchain-based projects. All the already existent maps have been scouted in order to analyze them, check out the inclusiveness and find out potential gaps. Within this category, sources involving ecosystem's maps and ICOs can be found.

The third category named "Business projects" gathers the literature sources necessary to understand blockchain-based projects and eventually the business model they are implementing. A complete list of the whitepaper analyzed is provided on paragraph 375.1.

These activities range from the review of content and extrapolation of the main content, the identification of environmental maps' limitations and identification of challenges, opportunities and major trends of blockchain-based projects.

3.1.2 Business model literature

As mentioned before, the study of business modeling has been conducted in reliance of "Business model generation" (Osterwalder et al., 2010) and all the posts present in the official website blog.

These activities range from review of content and extrapolation of the main content to a presentation made to the research group regarding how to design a business model properly and how to test it.

3.2 Case study research

In line with the case study practice adopted by ISMB team in business-related consulting activities, see (Osella, 2013) the qualitative research methodology has been identified as the most appropriate way to proceed, considered the early stage of this new technology. Particularly, the case studies approach has been chosen to perform a comprehensive exploratory study upon blockchain-enabled business models.

Reasons for undertaking this pathway are several:

First, case studies are considered most appropriate as tools in the critical, early phases of a new theory, when key variables and their relationships are being explored (Eisenhardt, 1989)(Yin, 1994). The subject of study of this thesis, the blockchain technology, falls in this area; there is a lack, indeed, of authoritative literary studies about the viability of blockchain as a "pillar" of business models both in private and public sector.

Second, the lack of data pushes towards a qualitative approach such as case studies. While case studies may, and often do, use quantitative data, a key difference with other research methods is that case studies seek to study phenomena in their contexts, rather than independent of context (Pettigrew, 1973). Looking at the blockchain ecosystem, despite the significant number of new projects within the environment, it is alleged the problematic paucity of quantitative data to be elaborated and business logic awareness to be analyzed.

Third, case studies are generally conducted in close interaction with practitioners (Gibbert, M., Ruigrok, W. and Wicki, 2008) The environment under investigation caters

well to this principle because the potential communities of interest lie well beyond the academic sphere.

The intricate and complex nature of blockchain calls for exploratory case studies due to the absence of rich and consolidated literary theories in the field as well as to the lack of convergence on key variables to be considered and their reciprocal relationships (Tellis, 1997). Each unit of analysis examined through case study methodology is a company whose core business is centered on blockchain, regardless the industry it belongs to. The case design is based on a "multiple case design" logic (Yin, 1994) in which the presence of several contexts under examination is oriented towards heterogeneity rather than replication. In terms of distribution of units of analysis, the embraced approach is "holistic" (Yin, 1994), thus a single unit of analysis exist per each case.

3.2.1 Sampling

After these necessary clarifications, such methodology adopted for the case study analysis consists in three steps:

- Identification of a long list of cases suitable for the analysis
- Selection of a short list of cases to be examined according to specific criteria
- Analysis of each case according to a predefined template and subsequent harmonization of the results.

The long list has been generated starting from all the 1326 cryptocurrencies exchanged in the major exchange platform, data has been retrieved from CoinMarketCap [33].

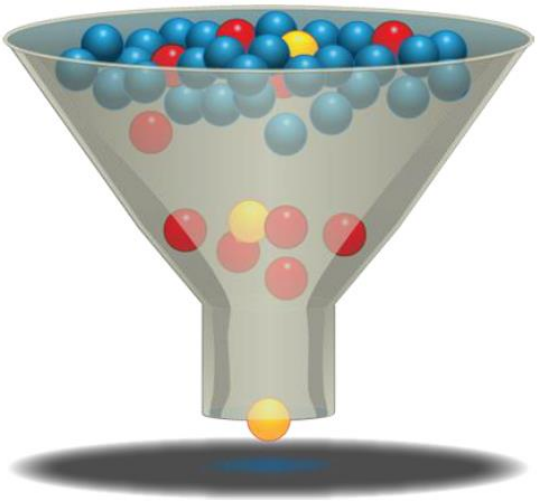

Figure 11 - Sampling

The selection of a short list ((Figure 11) of cases to be examined according to specific criteria occurred following a mixed approach, combining empirical sampling with theoretical sampling

The criteria used for the theoretical sampling are:

- Market capitalization: the first 50 cryptocurrencies for market capitalization (Appendix 1)
- Type of blockchain: have been chosen only cryptocurrencies that are based on a blockchain public, open source and permissionless. In this present thesis it has been chosen to examine in-depth only the category of public blockchains having an open permissionless access to the consensus process. The underlying rationale is that only this type of blockchain is considered actually disruptive and innovative, thus capable of marking a paradigm shift towards a decentralized world.

The criteria used for the empirical sampling, allowing to concentrate on exceptional cases of success or popularity.

- Top fastest ICO
- Top technical developers
- Projects leaded by top blockchain influencer
- Top mining facilities

The final short list comprises 32 enterprises under lenses.

3.2.2 Triangulation of information sources

The sources from which the information, used for the conduct of the case studies, have been collected can be grouped in three categories (Ferro & Osella, 2011):

- Whitepapers, bluepapers and other sources of different kinds
- Apps, minimum viable products and prototypes
- Semi-structured interview to practitioners

The role of predominant source of information, for conducting case studies, has been carried out from whitepapers, due to the easy availability. Sometimes, whitepapers weren't enough to outline properly the cases or the business model, and the other two sources have been used to characterize more specifically. Artifacts or MVP have been studied in order to better understand the product offered and to which customer segment. In order to fill the information gaps still present, some interview have been conducted to

informants (C-levels and developers) in order to identify the revenue logic, which sometimes wasn't explicit in the whitepaper.

3.2.3 Cross-case analysis

In order to elaborate the information gathered from the case studies and extract archetypal business models, implemented by the archetypal actors, the cross-case analysis approach is adopted. The archetypal business model has been identified and described. In order to provide a better immediacy and communicability it has been decided to use the business model canvas tool.

4 Blockchain ecosystem

4.1 Review of pre-existing maps

As mentioned in the previous chapter, the first step is to identify the main dimension along which the blockchain ecosystem can be mapped. The already existent map taken from professional literature have been scouted and set out below for reader's interest.

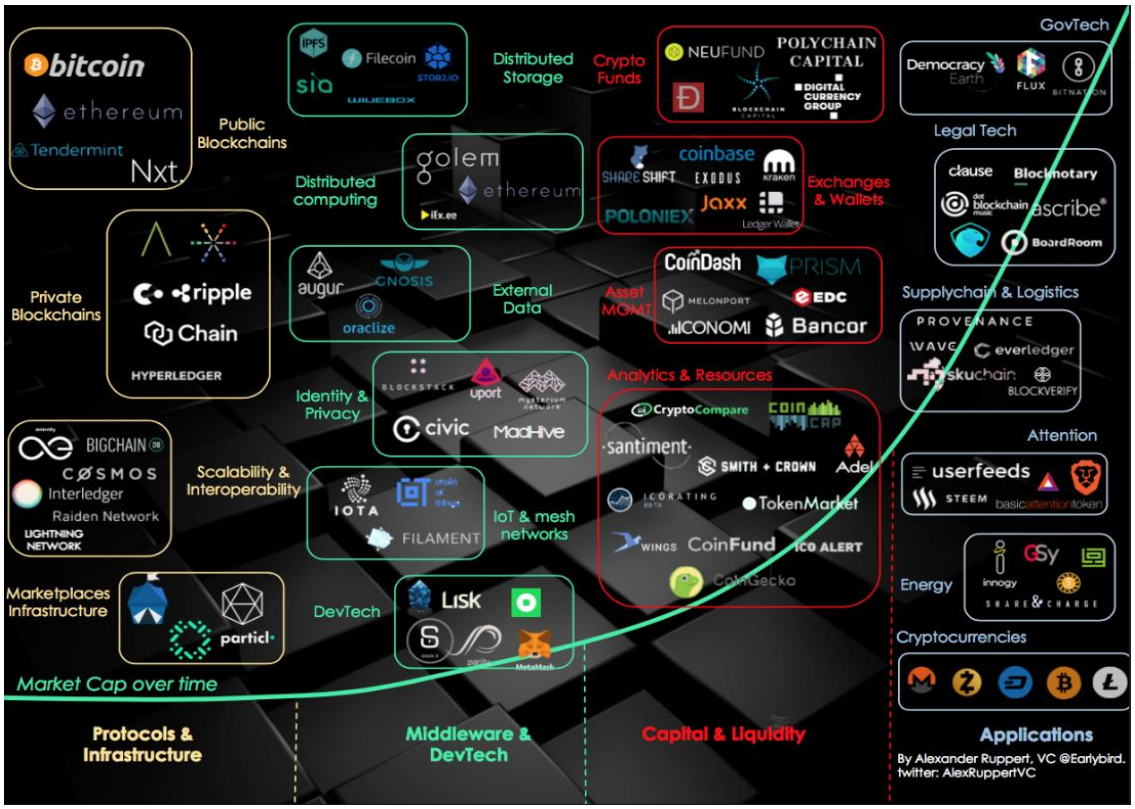

Figure 12 - Ecosystem's maps 1

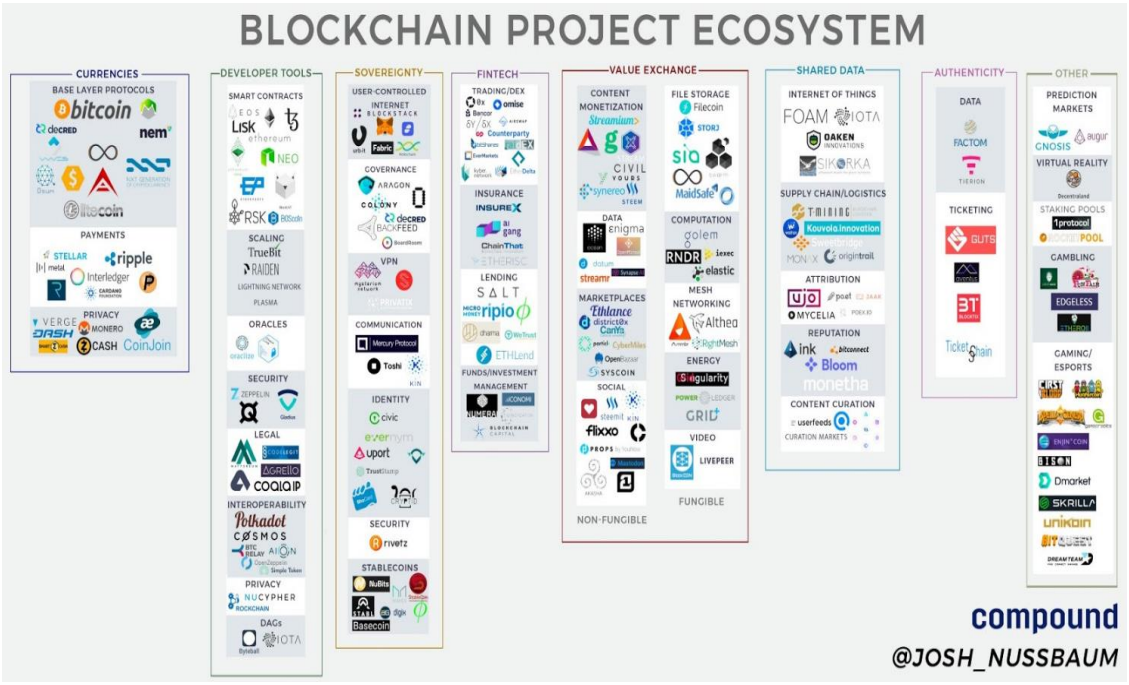

Figure 13 - Ecosystem's map 2

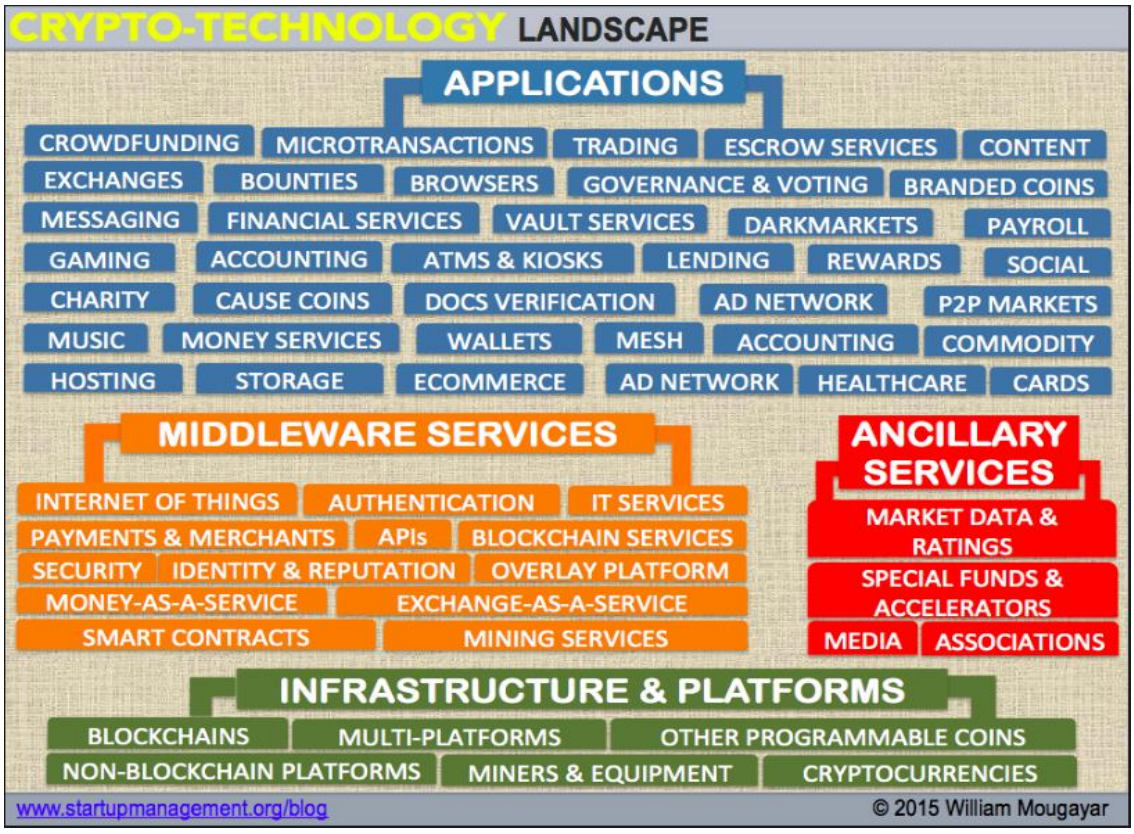

Figure 14 - Ecosystem's map 3

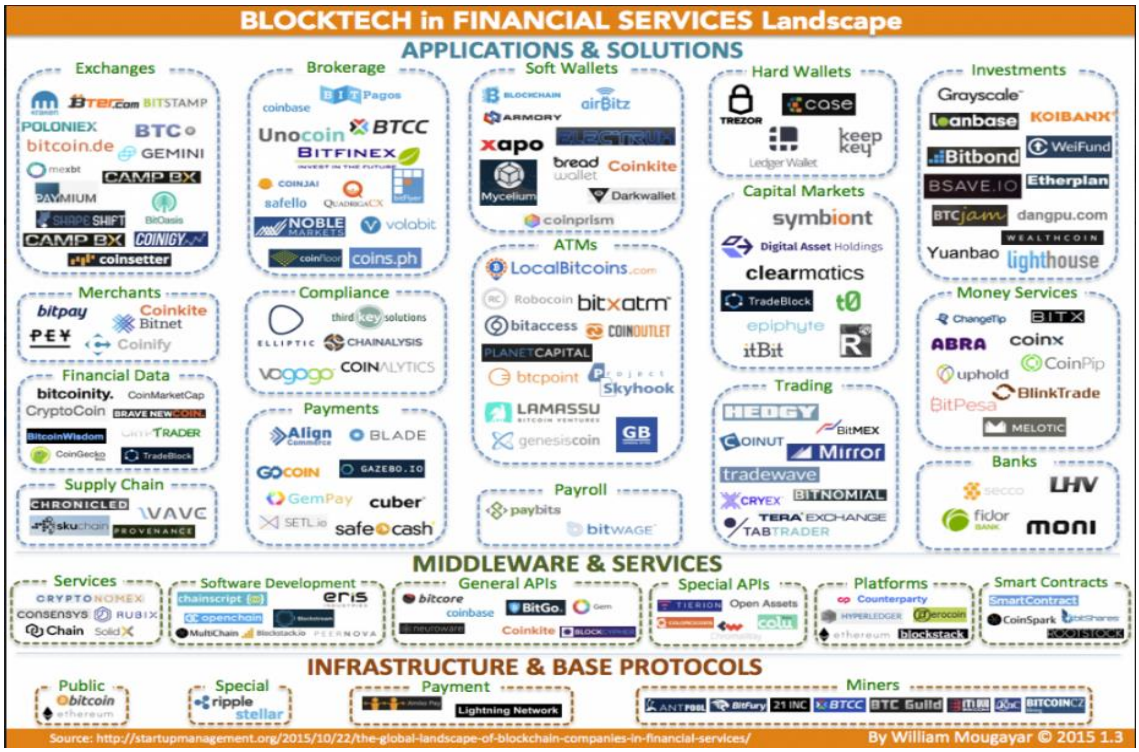

Figure 15 - Ecosystem's map 4

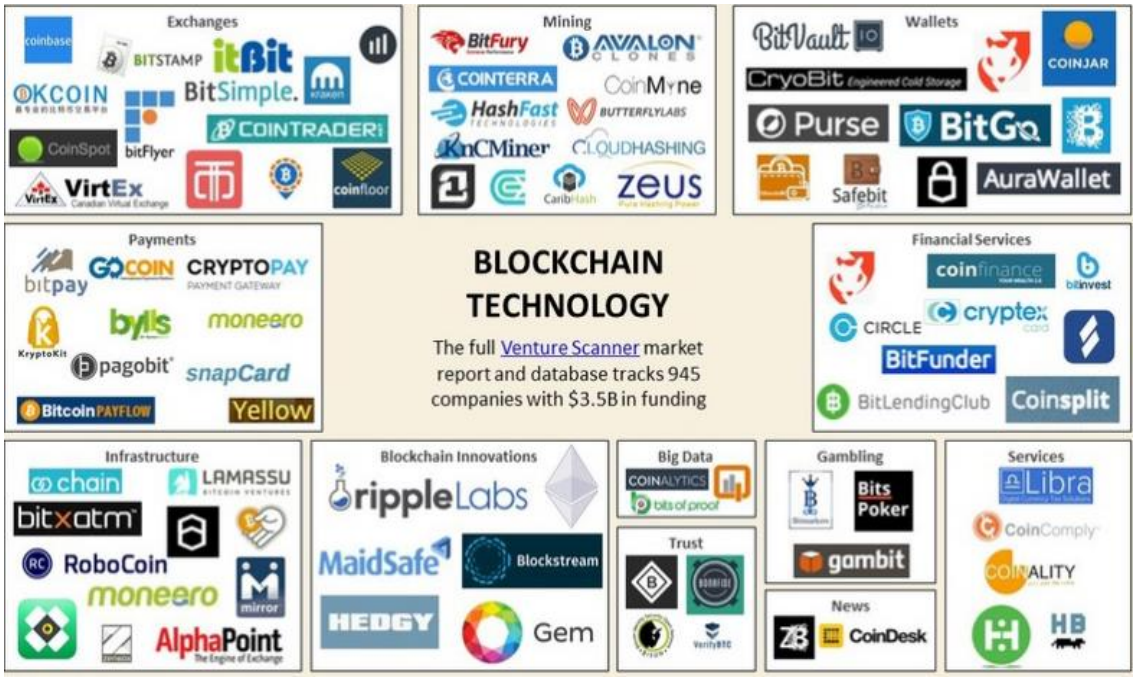

Figure 16 - Ecosystem's map 5

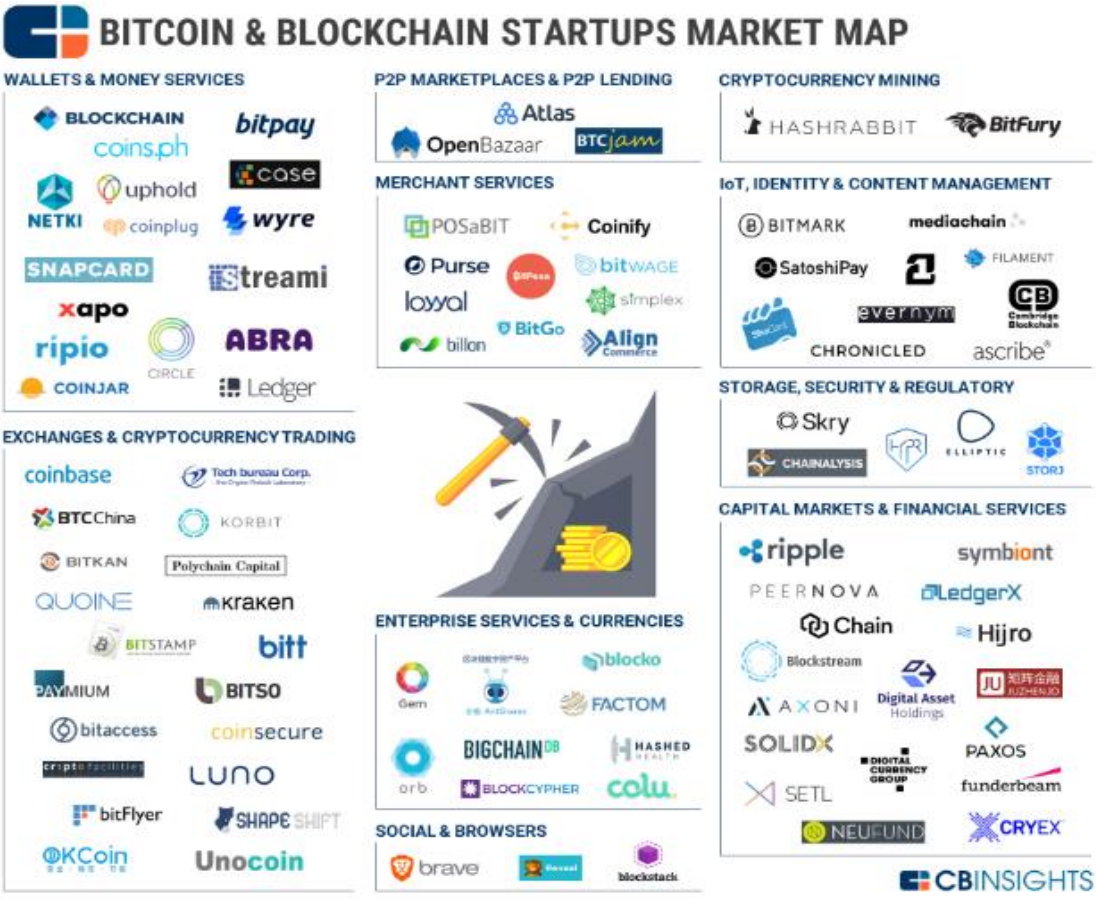

Figure 17 - Ecosystem's map 6

Table 3 - Ecosystems' maps

Map	Source	Variables
1	Medium [34]	Protocols & infrastructure, Middleware & devtech,, Capital & liquidity, Applications
2	Techcrunch [35]	Currencies, Developer tools, Sovereignty, Fintech, Value exchange, Shared data, Authenticity, Other
3	Startup management [36]	Infrastructure & platform, Middleware services, Ancillary services, Applications
4	Startup management [37]	Infrastructure & base protocols, Middleware & services, Applications & solutions
5	Venture scanner [38]	Exchanges, Mining, Wallets, Financial services, Payments, Infrastructure, Blockchain innovations, Big data, Trust, Gambling, News, Services

6	CBInsights [39]	Wallet & money services, P2P marketplace & lending, Mining, Exchanges & crypto trading, Merchant service, IoT, Identity &content management, Storage, Security & regulatory, Enterprise services & cryptocurrencies, Capital markets & financial services, Social & browser

The already existent ecosystem's maps (Table 3) suffer from formal robustness problems:

- Not exhaustive
- Inhomogeneous categories
- Mix of market and technological components
- Absence of methodology for instances' choice

Due to the lack of the already existent maps, it has been decided to re-elaborate them and created a proprietary framework, able to allocate every project unambiguously within these maps, in the form of 2X2 matrix.

4.2 Value ecosystem framework

It has been started from the first axe of this matrix, dividing in four layers the technological environment (Figure 18).

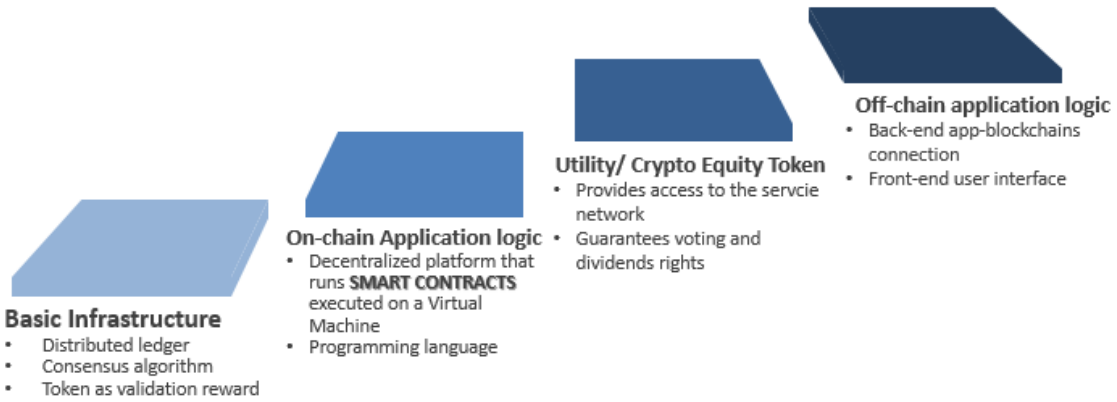

Figure 18 - Value ecosystem framework

4.2.1 Basic infrastructure

The basic infrastructure is the lowest layer, which contain just the essential elements needed to establish a public blockchain. The blockchains that offer just the basic infrastructure fall within the afore-mentioned category Blockchain 1.0.

The three elements that compose the basic infrastructure are:

- Distributed ledger: a shared, synchronized, replicated and redundant databases spread across multiples nodes [40].
- Consensus algorithm: The consensus algorithm is the solution of the consensus problem for agreeing on transactions' validity and their order. The algorithm is needed to ensure the correctness of the blockchain and to avoid the system's derailing caused by malevolent nodes. Every blockchains can implement its own consensus algorithm, the main ones are: proof-of-work, proof-of-stake, proof-of-burn and proof-of-activity [41].
- Token as validation reward: the token reward is needed as economic incentives for the nodes that manage and validate the transactions in the network. The tokens can be mined, in case of proof-of-work algorithm, or minted, in case of proof-of-stake.

4.2.2 On-chain application logic

Some blockchains, such as Ethereum, have built on top of the basic infrastructure a brand-new programmable decentralized platform allowing users and developers to have a suite of protocols to build decentralized applications not limited to cryptocurrencies [42]. The core of the platform is the decentralized virtual machine, which is able to execute different types of programs, written in the native programming language (i.e. Solidity for the Ethereum virtual machine EVM). A specific kind of program running on the decentralized virtual machine is the "smart contract". A smart contract, as mentioned before (paragraph 2.1.6) is a computer programs, running on a decentralized virtual machine, that, once "signed" execute automatically upon the occurrence of pre-defined conditions.

4.2.3 Utility/Crypto equity token

There's a second layer token that can be implemented especially by the decentralized applications. This token differs from the token as validation reward mentioned in the basic infrastructure paragraph, for both technological perspective and economical functioning. This token, in fact, doesn't serve as validation reward, because the network on top of

which the decentralized applications are built is managed by using the first layer infrastructural token.

The second layer token is generally of two types:

- Utility token: the utility token, provide users the access to the platform [43]. In its turn it can be of two types:
    - Usage token: is a token required to get into the platform, to participate the network and to gain the access to the product or service offered by the decentralized application [44].
    - Work token: is a token required to access the platform and obtain the right to contribute and develop on the decentralized application.
- Crypto-equity token: is a token generally issued and exchanged during an ICO (Initial coin offering). These tokens entitle the holders to a share in the profit of the applications, similarly to a standard dividend, and the right to vote, allowing the shareholders to act a more active role in the company governance.

4.2.4 Off-chain application logic

Every decentralized application, besides the second layer token, needs two essential components:

- Back-end layer: the connection layer, obtained through the smart contract, to connect the decentralized application with the blockchain.
- Front-end layer: which can generally foresee a user interface, but sometimes the d-app implement something more complex, as in the case of Basic attention token, which have implemented a brand-new browser.

4.3 Value ecosystem exemplification

Using the value ecosystem framework, is possible to analyze the degree of vertical integration of any project within the blockchain ecosystem. An exemplification has been presented (Figure 19) by way of example.

Steem				
Coinbase				
BAT				
Ethereum				
Bitcoin				
	Basic Infrastructure	On-chain application logic	Utility/crypto equity token	Off-chain application logic

Figure 19 - Value ecosystem exemplification

4.4 Ecosystem matrix

As second axe of the matrix, the strategical on chain position has been selected (Figure 20). The two positions are:

- Single chain: the blockchains or the applications, built on top of blockchain, focus on just one ecosystem
- Cross chain: the blockchains or the applications, built on top of blockchain, but aiming to enable cryptocurrencies' exchange and to support the exchange of data and value among different blockchain ecosystems.

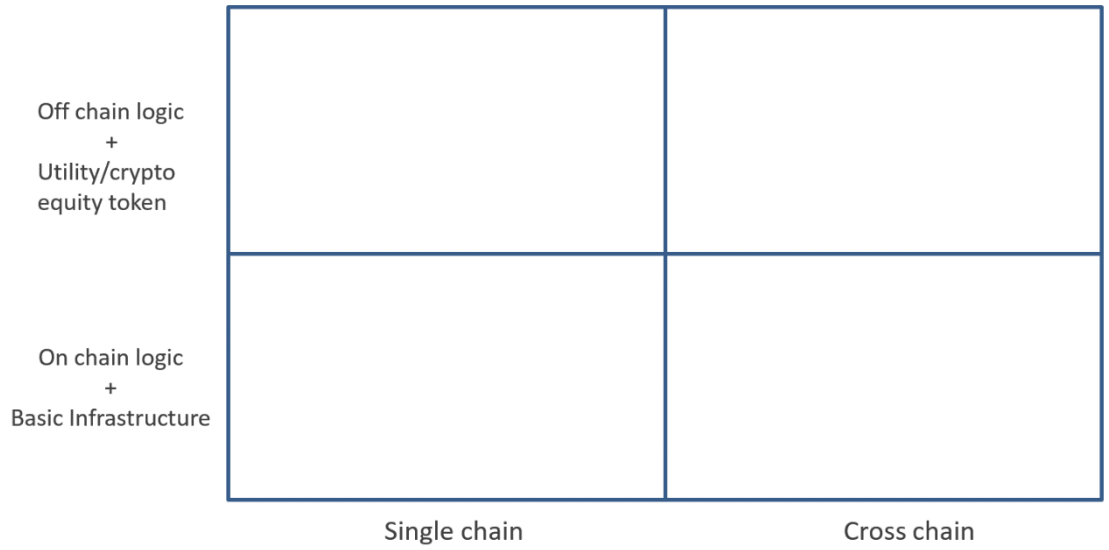

Figure 20 - Blockchain ecosystem matrix

This matrix will be used in the next chapters to categorize the case studies with the objective to identify the archetypal actors, within the blockchain ecosystem, and the archetypal business model implemented by the actors.

5 Archetypal actors

As mentioned in the methodology chapter, the intricate and complex nature of blockchain calls for exploratory case studies due to the absence of rich and consolidated literary theories in the field as well as to the lack of convergence on key variables to be considered and their reciprocal relationships (Tellis, 1997) . The case design is based on a "multiple case design" logic (Yin, 1994). After the sampling phase, both theoretical and empirical, it has been started a systematic study of all the resources available for the project within the short list. After this preliminary study, it has been noticed that the bottom left quadrant of the matrix (Figure 21), would have been filled with technological infrastructure protocols. Considered that this exploratory study has been carried out following a business perspective, have been deemed better suited to explore who is currently doing business by running these infrastructures. (Figure 22).

The revised short list put into action taking advantage of several sources, as mentioned in the methodology chapter: literary sources, such as whitepapers, bluepapers company websites and collaborative repositories; Artifacts, such as minimum viable products, applications and prototypes; semi-structured interview to practitioners.

5.1 Case studies

The cases introduced in the short list, for whom were available a whitepaper (Table 4) have been examined with an extended paragraph. As regards the other cases, a short synopsis has been elaborated placing an emphasis on the value proposition and eventual key technical factors (Table 5).

Table 4- Case studies with whitepaper

Case study	Logo	Founders	Short description
Golem		Julian Zawistowski, Piotr Janiuk, Andrzej Regulski Aleksandra Skrzypczak	The Golem Project was founded in 2016. Golem creates a decentralized sharing economy of computing power and supplies software developer [45]

Sia		David Vorick Luke Champine	Sia is a decentralized storage platform secured by blockchain technology founded in 2014. The Sia Storage Platform leverages underutilized hard drive capacity around the world to create a data storage marketplace [46].
Populous		Sean Williams	Populous is a peer-to-peer platform, founded in 2017, that uses blockchain to provide small and medium-sized enterprises a more efficient way to participate in invoice financing [47]
Power Ledger		Jemma Green David Martin John Bulich Govert Van Ek Jenni Conroy	Power Ledger is an Australian blockchain-based cryptocurrency and energy trading platform that allows for decentralized selling and buying of renewable energy. The platform provides consumers with access to a variety of energy markets around the globe and is meant to be scalable to various energy infrastructures and regulations [48].
Augur		Jack Peterson Joey Krug	Augur was founded in 2014 by Jack Peterson and Joey Krug to develop a decentralized oracle and prediction market platform on the blockchain that could be deployed by anyone as open-source software [49]

Gnosis		Martin Köppelman Stefan George	Gnosis, founded in January 2015, is a decentralized, permissionless and trustless platform for prediction markets built on top of Ethereum (Köppelman & George, 2017)
Basic attention token		Brendan Eich	Basic Attention Token, launched in 2017, is an opensource, decentralized digital advertising platform based on Ethereum. Basic Attention Token has been integrated into the Brave web browser as part of its Brave Payments program [50].
Steemit		Dan Larimer Ned Scott	Steem is a blockchain and social networking platform that incentives community and social interaction with a cryptocurrency rewards The platform has been launched in 2016 by the company Steemit Inc (Larimer & Scott, 2017)
Status		Jarrad Hope Carl Bennets	Status is a project built on top of Ethereum that combines an open source messaging platform with a mobile interface to interact with dapps, namely decentralized applications. The project has been launched in 2017 [51].
Monetha		Andrej Ruckij Justas Pikelis	Monetha, founded in January 2017, is a blockchain company creating a universal, transferable, immutable trust and

		Laurynas Jokubaitis	reputation system combined with a payment solution [52].
Salt		Shawn Owen Phil Cowan	SALT is a peer-to-peer lending platform specifically designed for blockchain assets; operating as a second layer protocol built on top of any public or permissioned blockchain, allowing the underlying asset to be used as collateral for access to credit (SALT Technology Ltd., 2017).
TenX		Toby Hoenisch, Julian Hosp, Micheal Sperk Paul Kitti	TenX is a platform, founded in 2015, which offers to customers a multi-cryptocurrencies wallet associated with a "crypto-debit card", providing to the users an opportunity to pay, for the everyday purchases, with the major cryptocurrencies (TenX Pte Ltd, 2017).
Syscoin		Sebastian Schepis Jagdeep Sidhu Dan Wasyluk Sebastien Dimichele	Syscoin is a blockchain launched in 2014 by Blockchain foundry Inc, based on the fork of Bitcoin and merge-mined with it. The first projects implemented by the team on Syscoin blockchain is Blockmarket desktop, a fully-decentralized marketplace (Sidhu, 2014).

OmiseGO		Jun Hasegawa Donnie Harinsut	The company Omise has been launched in 2013 and since then has provided payment services across the Asian market. The company introduces in 2017 OmiseGO, a decentralized exchange associated with a payment platform (Poon & OmiseGo team, 2017).
Hshare		Dallas Brooks Khal Achkar Andrew Wasylewicz	Hcash is the cryptocurrencies of the Hcash open-source distributed ledger, which aims to act as a bridge among blockchain, such as Bitcoin and Ethereum and others distributed ledger, for instance Directed acyclic graph such as IOTA or Byteballs. Hshare is the pre-launch value token with a 1:1 Hcash (Hcash team, 2017).
Ark		Mike Doty Lars Rensing Travis walker	Ark is a decentralized ecosystem, launched on February 2017, with the mission to increase consumer adoption of blockchain technologies. The Ark infrastructure is built as a derivative from Lisk and Bitshares from which inherits the Delegated proof of stake consensus mechanism (ARK team, 2016).

5.1.1 Golem Project

The Golem Project was founded in 2016 by Julian Zawistowski, Piotr Janiuk, Andrzej Regulski and Aleksandra Skrzypczak.

Which problem

Nowadays, the market for computing power is dominated by few and huge players such as Amazon, Google, Microsoft and IBM. These giant companies exploit their preeminent position and their vast availability of computing resources to dominate the market of computing power, renting that to the customers, on a centralized basis. This sort of oligopoly leads to an inefficient market for customers.

What

Golem project aims to build a global computing market where the computing resources aren't supplied by big companies in centralized manner, but rather supplied by the distributed personal contribution of both individuals and professional providers (Golem Project, 2016). Making an analogy with the "sharing economy" [53], in the accommodation business, perhaps a bit bold, but self-explanatory, think at Amazon Web Services as a traditional hotel and Golem as Airbnb.

In addition, Golem application registry enables software developers to deploy and monetize software, in a "nearly complete information market".

As a result, the three main actors within the Golem network are:

- Requestors, who get access in a convenient way to hardware and software to execute tasks.
- Providers, who are in the position of monetizing an under-utilized asset, in this case computational resources
- Software developers, who monetize software generation by harnessing Golem as a distribution channel

Blockchain use

Golem implements a ERC20 Ethereum based utility token, which is used for every payment that occurs on the platform, including the token sales during the ICO. In order to handle the transactions through the platform Golem is implementing the transaction framework on top of Ethereum, which has been considered the best option for running a transparent and trustless platform.

ICO

Started on 13/10/2016

Ended on 13/11/2016

Funds raised: 820000 ETH, at that time 8,6 M$

5.1.2 Sia

Sia is a product developed in 2014 by the company Nebulous Inc. [54] founded in 2013, implemented as a blockchain based altcoin. The two founders of the project are David Vorick and Luke Champine.

Which problem

The cloud storage market is dominated as well by giant players such as Amazon, Google, Dropbox and Microsoft which and all data centers are owned and operated by single companies. As mentioned before, analyzing Golem, these big companies created an Oligopoly which is inefficient for the customers. Moreover, when talking about sensitive data storage, a key question is privacy and security of data, and in the last months the problem of data storage is increasing due to some breaches even in well-known companies.

What

Instead of renting storage by a single, centralized actor, Sia is a collaborative cloud for data storage, allowing individuals or professional providers renting under-utilized hard-drive, so peers of the network rent storage from each other. Sia is not a cloud storage, it just stores smart contract on the Sia blockchain, which ensure the encryption and transfer of data without relying on a trusted third party because data integrity is guaranteed by redundancy and cryptography.

Blockchain use

In the decentralized marketplace for storage built by Sia, the agreements are officialized by signing a smart contract, negotiating the amount of storage and the price, which ensure the encryption and the transfer of data with no possibilities for a third party to meddle. Sia splits into small bits the files and distribute all these pieces across the decentralized network, and the cryptographic keys, needed to recompose the original file spread into the network, are owned directly by the customer. By forging the contract, the storage provider has to broadcast to the network “the proof of storage” which is a proof, publicly verifiable on the blockchain, that he is storing data for the prescribed amount of time. Only if the consensus is reached on the network the smart contract automatically enforce and the storage provider will get remunerated.

ICO

In 2016 Sia made a Siafunds tokenized securities offering. Siacoin is the utility token needed to participate the network, while Siafund [55] is the Crypto Equity token that

allow the investors to receive a share of the transaction fee that users pay to rent store capacity.

5.1.3 Populous

Populous was founded by Stephen Williams in 2017

Which problem

Frequently, SMEs (Small and Medium Enterprise) suffer from significant liquidity problem, due to decoupling time between the moment they invoice the earning and the moment they cash in the earning. During this cash flow cycle, some companies that need cash liquidity, in order to continue the investments, have to subscribe a short-term loan with a Bank or another financial institution [56]. Those companies have a dominating role into the invoice market ecosystem and this leads to some inefficiency and high barriers to entry, in terms of fee and in terms of geographical regulation.

What

Populous offers a peer-to-peer blockchain-based invoice marketplace platform. The main three actors within the platform are (Williams, 2017b):

- Administrators: approve and manage the platform, the clients' wallet and the auctions.
- Invoice sellers: receive fast short-term cashflows
- Invoice buyers: receive interest rate that before the invoice marketplace was only for financial institutions

The monetization for Populous occurs when both sellers or buyers decide to withdrawal the funds on the wallet; this procedure is charged with a fee.

Blockchain use

Populous platform is built on top of Ethereum and exploit the smart contract running on the Ethereum Virtual Machine, that automatically disburse fund when the conditions prescribed into the contract occur (Williams, 2017a). Blockchain guarantees in this case fast and secure payment and auditable trail of all the invoice transaction. The platform implemented two different tokens with two different purpose:

- PPT: which are the token used for the pre-ICO with the only goal to raise funds for the project and can be used to get Pokens

- Pokens: is the utility token needed within the platform for the payment between invoice buyers and sellers. It's a fiat-pegged-cryptocurrency where 1 Poken worth 1 GBP

ICO
Started on 24/06/2017

Ended on 24/06/2017

Funds Raised: 10 M$

5.1.4 Power ledger

Power ledger is an energy trading platform, announced on august 2016 and co-founded in Australia by Jemma Green, David Martin, John Bulich, Govert Van Ek and Jenni Conroy.

Which problem
The way of producing energy has changed significantly over the years, at the same is changed the role of the consumers and the centralized energy providers authorities. The rapid changing has shifted the centralized power plant to the DERs (Decentralized energy Resources) and the flow of energy is no more from the plant to the houses but is bidirectional because a lot of houses now produce energy, shifting the role of customers from consumers to prosumers (Power Ledger Pty Ltd, 2017). An issue is represented by the fact that the consumers that deploy their own generated energy to the network, controlled by the central authorities, are under-rewarded for their contribution

What
Power ledger aims to re-imagine the network to create a decentralized and trustless trading platform, that allows consumers with solar panel on their roof to sell the excess of electricity to their neighbor. This trading platform reduce the inefficiency of the current market, allowing producers to get a higher price and people who consume it to get a more competitive deal.

Blockchain use
Power ledger implemented two layers of token:

- POWR are the frictionless blockchain ERC20 token that are issued through the ICO and allow participants to access the network. These tokens, tradable in the main exchange platforms, can be escrowed to get Sparkz trough a smart bond.
- SPARKZ are the utility tokens used for the payments within the platform and can be trade up to buy or sell electricity

ICO
Started on 08/09/2017

Ended on 06/10/2017

Funds Raised: at the time 13.5M$

5.1.5 Augur

Augur is a decentralized prediction market platform, founded in 2014 by Jack Peterson and Joey Krug.

Which problem
The problem with previous prediction market platform is the centralization. As mentioned before, a centralized enterprise suffers from such problems that are particularly serious in a prediction market. The main problem is represented by the reporting methods: in any prediction market, someone has to report what actually happened after the event occurred. In a centralized prediction market just one person/entity does this, which means there can be involuntary mistakes or outright manipulation.

What
Augur is a trustless, decentralized oracle and prediction market platform (Peterson, Krug, Zoltu, Williams, & Alexander, 2018) that rewards users for predicting future events. The accuracy of Augur trustless decentralized platform rests in the idea of "The wisdom of the crowd" (Surowiecki, 2004), which states that the answer given from enough people is far more accurate than any expert. (successfully implementation of prediction market outside the blockchain world are Iowa electronic market [57] and Hollywood stock exchange [58]). Augur oracle enables information to flow from the world to blockchain without a third intermediary.

Blockchain use
Augur aims to solve the already mentioned problems of centralized markets by creating a decentralized network. The developer's team role is to deploy smart contracts on the Ethereum blockchain. The contracts developed are completely automated, eliminating the risk of theft and corruption. Augur implements REP, an Erc20 native token, needed by creators and reporters. On Augur the consensus of network is considered the "truth" for determining the market's outcome. By owning REP and participating the network, reporting on the outcome of events, REP holders are entitled to a portion of the fees on the platform (Peterson et al., 2018).

ICO
Started on 17/08/2015

Ended on 01/10/2015

Funds Raised: 19054 BTC + 1176816 ETH at the time 5,1 M$

5.1.6 Gnosis

Gnosis is a decentralized, permissionless and trustless platform for prediction markets built on top of Ethereum (Köppelman & George, 2017). Gnosis has been founded in January 2015 by Martin Köppelman and Stefan George. In the same year, the team joins ConsenSys, founded by Joseph Lubin, Ethereum co-founder, to develop applications for decentralized ecosystem.

Which problem

Similarly to what has been said for Augur in the previous paragraph, centralized prediction markets platforms suffer from several problems. Centralized platform can be easily shut down and a trusted third entity has to report what actually happened after the event occurred, representing a single point of failure.

Specifically, in order to become a disruptive tool, a prediction market platform needs to be all-encompassing and tap from a global liquidity pool (Köppelman & George, 2017).

What

The mission statement of the team is" to build a truly impartial exchange for information aggregation to quantify the future. A permissionless and decentralized platform built on Ethereum, "Gnosis is the easiest way to aggregate relevant information from both human and AI agents into one number" (Köppelman & George, 2017). The team aims to create a platform where who has the information is incentivized to trade this information, disclosing it to the market, and who hasn't the information is incentivized to obtain it, participating the market. Specifically, the core objectives are: to create the world's most efficient forecasting tool, to customize the information search and to create a standard for predictive assets.

Blockchain use

The platform rests on three different layers:

Gnosis core layer, which provides the basic event smart contracts, that govern the outcome token creation and the market mechanisms.

Gnosis service layer, which provides components needed for anyone who aims to build an application on top of Gnosis.

Gnosis application layer, which represent the front-end applications, developed by third parties or by the Gnosis team itself, that use Gnosis as base platform and liquidity hub.

Gnosis team implemented two types of tokens, the GNO tokens an ERC20 compliant token, which have been exchanged during the ICO and the OWL tokens, which can be used to pay fees within the platform. OWLs are generated activating the utility of the GNO tokens, locking them into a smart contract which stocks the tokens for a pre-determined amount of time [59]

ICO
Started on 24/04/2017

Ended on 24/04/2017

Funds Raised: 250000 ETH at the time 12.5 M$

5.1.7 Basic attention token

Basic attention token is the cryptocurrency implemented by Brave Software Ltd., founded by Brandan Eich in 2016. Brendan Eich is a well know American technologist, creator of Java script and founder of Mozilla.

Which problem
Nowadays, the digital advertising reward mechanism is flawed.

The attention marketplace, has become overrun by a multitude of "Middleman" such as agencies, retargeting enterprises and media planning enterprises [60]. This excessive number of intermediaries between the marketer and the publisher generate two main problem: high transaction cost and high latency.

The situation has further deteriorated due to the advent of social platform such as Google or Facebook which internalizes an increasingly share of the advertisement revenues and cause a low effectiveness of advertisement campaign due to the bad targeting (Brave Software, 2018).

Those issues cause the following problems for the actors within the advertisement marketplace:

- Publishers are hurting for the 66% of revenues' decreasing.
- Users suffer from privacy violated, "malvertisement" and data lost, amounting for 23$ per month.
- Advertisers suffer from poor targeting, fraud and lack of good information for what they are paying for

What
The solution proposed by Brave software foresees the creation of a blockchain-based marketplace able to reward correctly and effectively the generation of content in Internet, identifying, measuring and rewarding the user attention (Brave Software, 2018). The

solution is implemented in two steps. The first step foresees the deployment of Brave, an open-source chromium-based browser, privacy focused and able to measure transparently user attention.

The second step is Basic attention token, a token to be used within the decentralized advertisement exchange.

Blockchain use
The basic attention token is an ERC20 compliant token based on Ethereum technology which serves as an exchange in a new, decentralized, open source and efficient blockchain-based digital advertising platform. The fund's transfer and the verification process has been implemented entirely on Ethereum, using, in addiction, a zero-knowledge-proof , in order to ensure user's anonymity, while at the same time being able to offer well targeted ads [61] [62]. The fund transfer works as follow:
Xa – Xu - Xb = Xp,
Where Xa is the advertisers buy-in, Xu is the user share, Xb is the Brave placement share (Brave's revenue stream) and Xp is the publisher revenue.

ICO
Started on 31/05/2017
Ended on 31/05/2017
Funds Raised: 820000 ETH at the time 35M$

5.1.8 Steemit

Steem is a blockchain and social networking platform that incentives community and social interaction with a cryptocurrency rewards (Larimer & Scott, 2017). The platform has been launched in 2016 by the company Steemit Inc., founded by Ned Scott and Dan Larimer, founder of Bitshares and EOS.

Which problem
The already existing social media companies such as Reddit, Facebook and Twitter rely and exploit user generated contents within their own platform. Reddit was the first platform, in 2014, to speculate, without a practical implementation, about a platform where anyone who contribute to the platform gets paid for generating contents such as video making, articles writing, commenting and voting [63]. The problem Steem aims to solve is the lack of opportunity for content creators to monetize their effort spent on creating valuable contribution for the community. Steem aims to support them by rewarding them with cryptocurrencies (Larimer & Scott, 2017).

What

As mentioned before, Steem is a blockchain database that supports community building and social interaction with cryptocurrency rewards (Larimer & Scott, 2017). The first step faced by Steem was to elaborate an algorithm for measuring and scoring the user contribution that is considered a fair assessment of the subjective value of each contributor by the majority of the network (Larimer & Scott, 2017). The already existent platform use the algorithm one-user one-vote, but these algorithm can be easy manipulated by Sybil attack (Trifa & Khemakhem, 2014). Steem went for a different approach, operating on the basis of one-STEEM one-vote, where users who have contributed the most, as measured by the account balance, have the most influence over the contribution are scored.

Blockchain use

Steem team aims to facilitate the growth of the new social media platform through an economic incentive in the form of blockchain-enabled cryptocurrency. The cryptocurrency rewards occur in terms of micropayments, which require a new consensus algorithm within the network. Instead of using a proof of work algorithm, Steem has opted for a delegated proof of stake [64], where anyone with a vested interest in participating the network vote to select witnesses, functioning as delegates that are responsible for including testimony in the public ledger, namely blockchain (Steemit, 2017).

Steemit implemented three different asset classes (Larimer & Scott, 2017):

- STEEM, which is the fundamental unit of account and reward asset on the Steem blockchain. The other two tokens derive from STEEM
- Steem Power, which are generated by locking for thirteen weeks STEEM token. When users vote for a content, their influence is directly proportional to the mount of Steem power they hold. These kind of token is not-transferrable and non-exchangeable because it fulfils a long-term commitment function.
- Steem Dollars, which have been designed similarly to convertible notes [65]. Steem dollars is a kind of token-convertible-dollars with the purpose of brining stability to cryptocurrencies' economics.

ICO

NO

5.1.9 Status

Status is a project built on top of Ethereum that combines an open source messaging platform with a mobile interface to interact with d-apps, namely decentralized applications [51]. The project has been launched in 2017 by Jarrad Hope and Carl Bennets.

Which problem

Today, the social network environment is very diverse, however all the socials are based on a common structure. There are three different type of actors: the owner, the advertiser and the user. Each actor operates within the network in a different manner and with completely different objective. The owner aims to attract and retain users to the platform and to extract value from it, the advertiser aims to promote his products and to purchase user's data, the users aims just to connect with other people. (Status IM, 2017). The current social network models (Toivonen et al., 2009) suffer from misalignment among different actors' incentives and goals. Status team criticizes the business model user as a product and proposes user as stakeholder model.

What

Status d-app bundles two different service. As a browser such as Chrome, Mozilla or Safari provides a gateway to websites and institutions, status provides a gateway to decentralized application and services. The second service is messaging; smartphones have replaced personal computer as access point to the digital world (ComScore Media, 2016). Similarly to what WeChat have done in China, where 93% of the users use WeChat for offline purchases [66], Status aims to combine the messaging platform with a payment system. However, while WeChat is closed-source, with a proprietary interface and with a centralized architecture, Status acts as a node directly connected with Ethereum blockchain, having a permissionless access, decentralization and trustlessness (Status IM, 2017)

Blockchain use

Ethereum public blockchain and its related sub-protocols forms the backbone of Web 3.0 on which Status rests, using Swarm (Trón, Fischer, Nagy, Felföldi, & Johnson, 2016) for decentralized storage and Whisper [67], for peer-to-peer communication.

Status implemented two types of token.

At the beginning was created a pool of "Genesis Tokens", SGT, which fulfils a long-term commitment function. This token pool corresponded to a maximum of 10% of the total

token supply. After the contribution period, SGT could be converted to the Status network token, SNT, exchangeable during the token-sale period. SNT is a erc20 Utility token needed to participate the network.

ICO

Started on 17/06/2017

Ended on 01/07/2017

Funds Raised: 299343.151 ETH at the time 12MCHF

5.1.10 Monetha

Monetha is a blockchain company that aims to create a decentralized trust and reputation system. Monetha has been founded by Andrej Ruckij, Justas Pikelis and Laurynas Jokubaitis in 2017 in Lithuania, and recently moved the headquarters to Zug, the Swiss "Crypto-valley".

Which problem

The growth of e-commerce is going to be exponential and two projections are particularly relevant. E-commerce share of all retail sales is expected to increase to 14,6% in 2020 [68], and mobile retail commerce sales as a percentage of retail e-commerce is expected to increase to 49.2% in 2020. Despite this growth, three major problem have not yet been resolved (Ruckij, 2017).

- Trust and reputation: as mentioned in the first chapter, is impossible to transfer trust from one centralized database to another. A merchant or buyer history can be recorded in just one closed database and cannot be exported.
- Expensive and long payment process, especially for mobile payments. Payment process include 16 steps for money to be transferred from customer to merchant, and moreover transaction fee range from 2% to 6% (Ruckij, 2017).
- Inability to reach the growing Ethereum economy. Today, merchants have rarely the possibility to accept payments in cryptocurrency.

What

"Monetha is creating a universal decentralized trust and reputation solution working flawlessly together with mobile payments processing on the Ethereum blockchain leveraging smart contract technology." (Ruckij, 2017). Every time a transaction, using Monetha, between a buyer and a merchant occurs all the sensitive information are hashed and stored. Once the payment is done and the god delivered, the smart contract running on Ethereum will automatically update the trust score for each buyers and sellers. The

new trust level for both the client and the merchant will be visible on Ethereum blockchain or in Monetha app,

Blockchain use

In Monetha project blockchain carries out two main function. The first function is establishing trust between two unknow parties, without a trusted third authority. The visible, incorruptible and non-editable, if not from a smart contract, trust ratings are fundamental for a decentralized e-commerce. The second function, as direct consequence of the first one, is the provision of a fast and cheaper payment process (Ruckij, 2017), relying on the Ethereum blockchain.

The Monetha token, exchanged for ether during the ICO, is a ERC20 compliant crypto equity token. From the 1,5 % of transaction fee charged to the merchant, the 0,5 % goes to Monetha token holders, through a smart contract, in order to increase the network effect and reach a critical mass of Monetha users that enables the sustainability of the project.

ICO

Started on 31/08/2017

Ended on 31/08/2017

Funds Raised: 95000 ETH at the time 37M$

5.1.11 Salt

Salt, secured automated lending technology, is a membership-based lending and borrowing platform, launched in US in 2017.

Which problem

Traditional lending platforms suffer from two main problems. Generally, lenders are reluctant to accept traditional forms of collateral, such as real estate or movable asset because they are indivisible and not fast and easy transferrable. On the other hand, borrowers, which hold digital assets, suffer from the lack of liquidity option which doesn't entail the digital asset dismission.

Technological, custodial and regulatory barriers have prevented existing financial service company from adapting to the changing landscape and overcoming the risk needed to operate in a system without centralized oversight (SALT Technology Ltd., 2017).

What

The solution proposed by Salt Technology Ltd. intends to ease the creation of lending agreements, setting a blockchain-based asset as a collateral and automatically enforce the terms of each smart contract credit agreement. As mentioned before Salt is a membership-

based lending and borrowing network that allows users to leverage their blockchain assets to secure cash loans. Salt is protocol and asset agnostic, due to the architectural design, allowing to adapt to the constantly growing class of blockchain assets (SALT Technology Ltd., 2017). The lending process is conducted as follow:

- Origination, the blockchain-based assets are locked into a multi-signature smart contract as collateral
- Payment, according to the terms of the agreement the loan is paid off
- Depreciation, in case of the loan to value ratio rises over a certain limit (e.g. 80%), the smart contract asks for deposit new blockchain based asset in order to return to 80% limit.
- Default, in case the borrower is unable to match the depreciation condition, the smart contract would start automatically the liquidation of blockchain based asset, resulting in the sale of the amount of collateral needed to return the loan-to-value ratio to 80%

Blockchain use

Salt Memberships exist on the Ethereum Blockchain and loan collateral is recorded on its native blockchain. Any blockchain asset, including those that exist on permissioned distributed ledgers, can be used as collateral and managed by smart credit contracts. Salt oracle creates multi-signature smart contracts on the collateral's native blockchain or an external blockchain, case depending. Salt lending platform can be directly integrated into hardware-wallet devices allowing for additional security for loan collateral.

Salt Membership is an Ethereum-based Erc20 smart contract representing levels of access to the Salt lending platform. It can be redeemed for products and services and other rewards offered through the platform.

ICO

Started on 01/08/2017

Ended on 15/08/2017

Funds Raised: ETH and BTC at the time 48.5M$

5.1.12 TenX

TenX is a platform which offers to customers a multi-cryptocurrencies wallet associated with a “crypto-debit card”, providing to the users an opportunity to pay, for the everyday purchases, with the major cryptocurrencies such as bitcoin, Dash, Ethereum and other

Erc20 compliant tokens [69]. TenX has been cofounded in 2015, with headquarters in Singapore, by Toby Hoenisch, Julian Hosp, Micheal Sperk and Paul Kitti.

Which problem

Despite the terrific growth of cryptocurrencies in the last year, very few people are able to spend their cryptocurrencies without having to wait days to change them into fiat currencies through an exchange [70]. More precisely, more and more online stores accept cryptocurrencies, but almost none merchant or retailer accepts blockchain based asset in the real world. This phenomenon occurs because it's far easier to upgrade an online e-commerce solution than a real world one [71].

What

It will probably take few years until "real world" would accept cryptocurrencies, so TenX is resorting on the "Use what's there" approach [71]. TenX leverages the presence of "Pos" (point of sales) already existing in the real world. One product offered to the user is an apparently traditional debit card charged with blockchain based asset. The conversion in fiat currency happens in real time when the payment occurs, and the merchant receive fiat currency trough already established credit/debit payment circuits, with which TenX has established a partnership.

Blockchain use

Users are able to use any blockchain-baked asset to purchase good, as long as they're supported by the protocol. TenX uses the cross-chain payment channel enabled by the COMIT network. COMIT stands for "Cryptographically- secure Off-chain Multi-asset Instant Transaction network" (Hosp, Hoenisch, & Kittiwongsunthorn, 2017). The COMIT routing protocol is used by TenX to settle incoming requests from the credit card networks in real time. TenX launched a ERC20 compliant token, the PAY token, in order to collect additional funds and stimulate network effect (TenX Pte Ltd, 2017). Every time a payment occurs, the TenX debit card user will receive a 0,1% for cash back in PAY tokens. Then, every token holder will receive a 0,5% of the entire aggregate payment volume occurred on the company circuits.

ICO

Started on 14/06/2017

Ended on 14/06/2017

Funds Raised: 245832 ETH at the time 83M$

5.1.13 Syscoin

Syscoin is a blockchain launched in 2014 by Blockchain foundry Inc, based on the fork of Bitcoin and merge-mined with it. The first project implemented by the team on Syscoin blockchain is Blockmarket desktop, a fully-decentralized marketplace.

Which problem

Several projects aim to extend the functionality of blockchain beyond Bitcoin, the first solution for the double spending problem. Each project takes a different approach to solve issues such as flexibility, scalability and services-focus.

What

Syscoin is a public, permissionless and open source blockchain, with a set of smart contracts built on Bitcoin scripting system (Sidhu, 2014). From the interview submitted to the team, the afore-mentioned Blockmarket desktop is offered as a completely free application for Windows and Mac and acts as the new Syscoin wallet. Although Blockchain foundry don't generate revenue from Blockmarket, it is used as a proof of concept to show potential clients how Syscoin blockchain can be harnessed. Blockchain Foundry Inc's revenue stream comes from the activities of consultancy and tailored software services development for companies that want to use Blockchain technology for their own use-cases.

Blockchain use

The key feature of the Syscoin blockchain are: the possibility to build a wild variety of decentralized marketplace [72]; user aliases associated with data and public keys, forming the backbone of all Syscoin blockchain-based services (Sidhu, 2014); distributed certificate management, which can contain private and cryptographically encrypted information; merge-minable, allowing syscoin cryptocurrency, which suffer from low hash powered, to increase the hashing power behind their network by bootstrapping onto more popular crypto currencies such as Bitcoin or others Sha-256 mining algorithm [73].

ICO

NO

5.1.14 OmiseGO

The company Omise has been launched in 2013 and since then has provided payment services across the Asian market. The company introduces in 2017 OmiseGO, a decentralized exchange associated with a payment platform (Poon & OmiseGo team, 2017).

Which problem

Usually, traditional payment system, in order to be able to handle cross network payments, rely on a central counterparty clearinghouse, which manages all the interchange. One well-known example is the Swift network, which provides a network that enables financial institutions to perform international payments, equities and derivatives exchange. These centralized networks suffer from the afore-mentioned problems (paragraph 2.1.3), specifically , the controlling entity is able to arbitrary change the functioning scheme, causing a considerable transaction costs amount, including information asymmetry, due diligence and contractual enforcement among the counterparties (Poon & OmiseGo team, 2017)

What

In order to reduce transaction costs OmiseGO provides a decentralized exchange associated with a liquidity provider mechanism acting as a gateway for every blockchain-backed asset. Similarly to what Bitshares does, OmiseGO is not owned by any single entity, acting as a trustless gateway that enables exchanges among different blockchains. This result, according to OmiseGO team, can be achieved creating a transparently interchange payment process associated with the removal of a single trusted third authority.

Blockchain use

The OmiseGO networks rely on the delegated proof of stake mechanisms in order to enforce an honest behavior of all the participants. The OMG native utility token acts as a guarantee for the honesty of the participants within the blockchain. The removal of the central liquidity provider passes through a market assurance trough decentralized custody, enabled using smart contracts on top of Ethereum blockchain.

ICO

Started on 23/06/2017

Ended on 23/07/2017

Funds Raised: at the time 25M$

5.1.15 Hshare

Hcash is the cryptocurrencies of the Hcash open-source distributed ledger, which aims to act as a bridge among blockchain, such as Bitcoin and Ethereum and others distributed ledger, for instance Directed acyclic graph such as IOTA or Byteballs. Hshare is the pre-launch value token with a 1:1 Hcash, until Hcash is launched.

Which problem

The two afore-mentioned categories, blockchains and Dag, have the potential to became real disruptive technologies within the distributed ledger context. However, despite the possibility to be traded on different exchanges, native cryptocurrencies can only circulate within their distributed ledger. It has not presented yet a solution which would enable a free cryptocurrencies and information circulation from a directed acyclic graph to a blockchain and vice versa (Hcash team, 2017).

What

Hcash aims to elaborate a distributed ledger capable of acting as a bridge to effectively connect blockchains with directed acyclic graphs, allowing a free and flawless flow of both cryptocurrencies and data.

Blockchain use

Hcash platform achieves a free and flawless value and data circulation among blockchains and dags through the particular Hcash ledge design, which acts as a sidechain for the two. Since the already existent consensus algorithm showed some weaknesses, Hcash team opted for a new consensus algorithm, introducing the instant-open-governance, which associates the proof-of- with proof-of-stake mechanism. The block mined with the proof of work doesn't contain transaction, but just include the miner address, and then the procedure automatically switches to proof of stake (Hcash team, 2017).

ICO

Started on 28/06/2017

Ended on 15/07/2017

Funds Raised: 21,000 BTC at the time 40.4M$

5.1.16 Ark

Ark is a decentralized ecosystem, launched on February 2017, with the mission to increase consumer adoption of blockchain technologies. The Ark infrastructure is built as a derivative from Lisk and Bitshares from which inherits the delegated proof of stake consensus mechanism (ARK team, 2016).

Which problem

For cryptocurrencies' economics, the mass adoption is crucial in order to maintain a sufficient decentralization. The Ark team aims to reach mass adoption by solving two major problems that are currently affecting the blockchain ecosystem: difficult accessibility to consumers and lack of interoperability among different blockchains.

What

Ark aims create an entire blockchain ecosystem capable to encourage user adoption through an easy accessibility, to the point where consumers don't know what technology they are working on, and smart bridges, a brand-new tool able connect and allow communication among different blockchains to perform tasks and advanced functions (ARK team, 2016).

Blockchain use

The Ark cryptographically-secure blockchain network opted for a delegated proof-of-stake consensus mechanism, considered the best suited algorithm in order to provide a simplified future interaction between Ark and other different blockchain. The key role of the Ark native token is to bear value and data message across the blockchains [74]. The other key aspect of ark blockchain lies in its core code, equipped with the bridging function that allow to send and receive data from any other blockchain through the afore-mentioned smart-bridges and encoded listeners

ICO

Started on 07/11/2016

Ended on 11/12/2016

Funds Raised: 1280 BTC at the time 1M$

Table 5 - Cases without whitepapers

Case	Logo	Management Team	Short description
Genesis Mining	Genesis Mining	Marco Streng Stefan Schindler	Genesis Mining is a Cryptocurrency cloud mining service that offers an easy way to purchase hash-power. Genesis Mining offers hosted cryptocurrency mining services and a variety of mining related solutions to small and

			large-scale customers [75].
HashFlare		Sergei Potapenko Nikolay Pavlovskiy Vitali Pavlov	HashFlare is a platform that offers a range of cloud mining services implemented by the HashCoins team of cryptomining experts [76]. HashFlare offers an entrance in the mining business without the nedd of a huge commitment in mining hardware.
NiceHash		Marko Kobal Matjaz Skorjanc	NiceHash is the world's largest crypto-mining marketplace. It is based on the concept of a sharing economy by connecting sellers and buyers of computing power from all over the world [77].
Antpool		Micree Zhan Jihan Wu	AntPool is a mining pool run by the company Bitmain Tech Ltd. AntPool is a digital currency pool and open and public for users all around the world, AntPool support mining of Bitcoin, Litecoin,

			Ethereum and support payment method of Pps, Pplns and Solo [78].
CoinFabrik		Sergio Lerner Pablo Yabo Sebastian Raul Wain	CoinFabrik is a formation of technologist, software developers and cryptocurrency expert. The services offered range from the infrastructural side to the applicational side. The services offered include smart contract development and audit, blockchain public/private development, ad hoc blockchain solution for storing data o supply chain management [79].
LeewayHertz			LeewayHertz has been founded in 2007 as amobile app development company. Once the Blockchain technology has been introduced, LeewayHertz turned its attention to Ethereum and the ICO world. The company offers support for ICO launch, handling the ICO

			launch strategy, the technical development, the marketing and the technical support [80].
Oodles Technologies		Maneesh Madan Sonia Madan Roomani Bajaj	Oodles technologies is is an offshore software development company, founded 2009. Since the advent of blockchain technologies, a division of Oodles got involved in the ecosystem. Oodles offer blockchain-based dapps development, smart contract development and end-to-end ICO development solutions.
Consensys		Joseph Lubin	ConsenSys, founded in 2014, is a global formation of technologists and entrepreneurs building the infrastructure, applications, and practices within the decentralized world [81]. The main offer is consultancy helping organizations across the globe to build, test, and deploy public and

			private blockchain solutions [82].
Cosmos		Jae Kwon Ethan Buchman	Cosmos is composed by a network of independent parallel blockchain with a shared Byzantine fault tolerance consensus algorithm (Kwon & Buchman, 2017). The cosmos hub, through a new inter-blockchain communication protocol, aims to solve the architectural problems that blockchains projects are currently dealing with, such as interoperability, scalability and upgradability [83].
Polkadot		Dr. Gavin Wood	Polkadot is a blockchain project, presently under development, leaded by Dr. Gavin woods, co-founder of Ethereum and founder of Parity. Polkadot is a scalable heterogeneus multi-chain (Wood, 2017a), where polkadot provides the " rely chain" for the other independent blockchains

			(e.g. Ethereum, Ethereum classic, Bitcoin, Namecoin), aiming to solve three major problems: Interoperability, scalability and shared security (Wood, 2017b).
Bishares		Dan Larimer Charles Hoskinson	Bitshares is a public, open source, blockchain-based decentralized exchange. Bitshares is the first implementation of the "delegated proof of stake" consensus mechanism, at odds with the "proof of work" consensus mechanism [84].
Lightining Network		Joseph Poon Thaddeus Dryja	Lightning Network is a second layer payment protocol that operates on top of an already existent blockchain (e.g. Bitcoin) powered by smart contracts to enable instant and cryptographically secure payment across the network. Lighting network implemented a

			bidirectional payment channel with an Hashed time-lock contract, to secure the fund' transfer (Poon & Dryja, 2016).
Raiden	RAIDEN	Heiko Hess Oliver Bünting	Raiden network is the Ethereum version of the Lightning network in Bitcoin. Raiden is an off-chain scaling solution for performing ERC20-compliant token transfers on the Ethereum blockchain, enabling fast and private transaction, with lower fees compared to the miner ones [85].
Binance	BINANCE	Changpeng Zhao James H	Binance is one on the biggest cryptocurrencies exchange, launched in 2017. Binance launched in 2017 an ICO for the Binance coin, catalyzing a mass adoption through fee's incentivization for token holders (Binance labs, 2017).
Coinbase	coinbase	Brian Armstrong Fred Ehrsam	Coinbase is a cryptocurrencies exchange, founded in 2011 in San Francisco.

			The exchange has a limited amount of changes: Bitcoin, Bitcoin cash, Ethereum and Litecoin. Coinbase offers to the user two exchanges: the Global digital asset exchange for expert traders and the Coinbase exchange, allowing fiat currency entrance, for beginners [86].
ShapeShift		Roger Ver Barry Silbert	ShapeShift has been founded in 2013 in Switzerland. The company doesn't require any account and any information for the AML or KYC: the user just insert the destination address and the refund address, the amount of cryptocurrency to exchange (Shapeshift, 2016).

5.2 Archetypal actors

In reliance of a rigorous short list elaboration, the filled matrix, built on the previous chapter, would appear as follow (Figure 21):

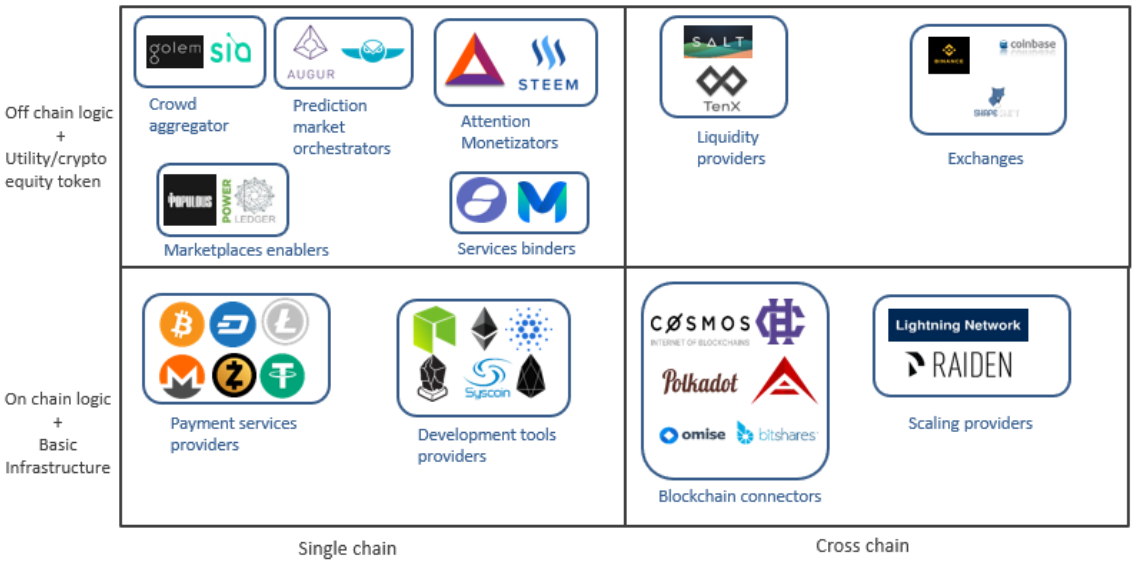

Figure 21 - Archetypal actors a

As mentioned before, the objects included within the bottom-left quadrant are core infrastructures, which are not owned by anyone without an intrinsic profit-seeking perspective. Considered the aim of this exploratory study, it has been deemed better suited to explore who is currently doing business by running these infrastructures (Figure 22). (Looking at Bitcoin or Ethereum, there isn't the company Bitcoin ltd. or the Ethereum ltd. Making business on it).

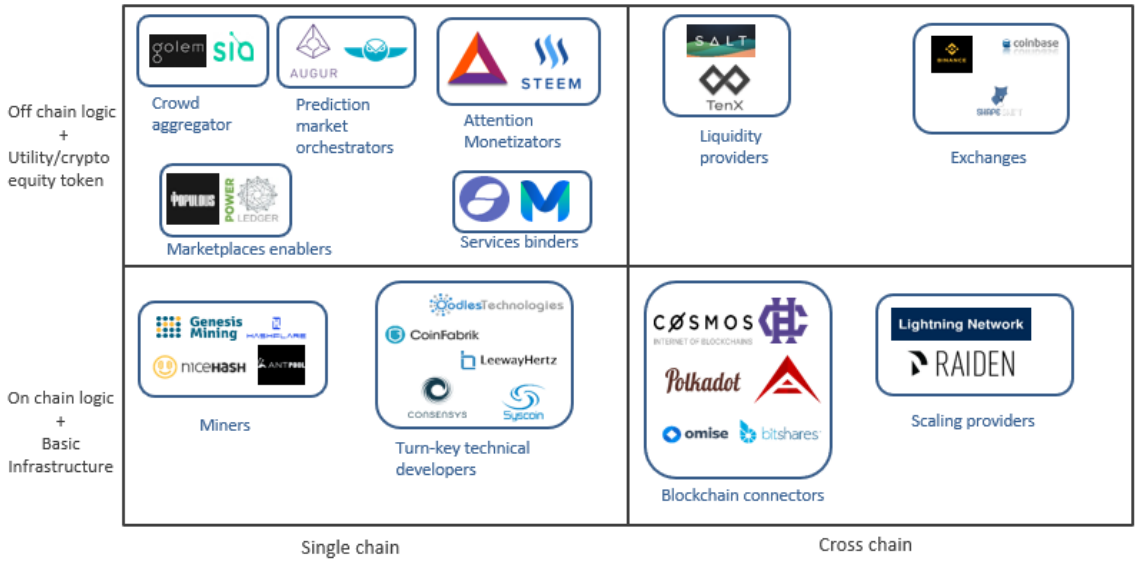

Figure 22 - Archetypal actors b

The archetypal actor labels have been identified by clustering the case studies described above and represent a backdrop for the subsequent analysis on business models implemented by the archetypal actors.

6 Archetypal business models

6.1 Archetypal business models' identification

The result of the cross-case analysis is designed in form of archetypes with the intent to show how the case studies analyzed can be ascribed to 20 ideal types (Figure 23).

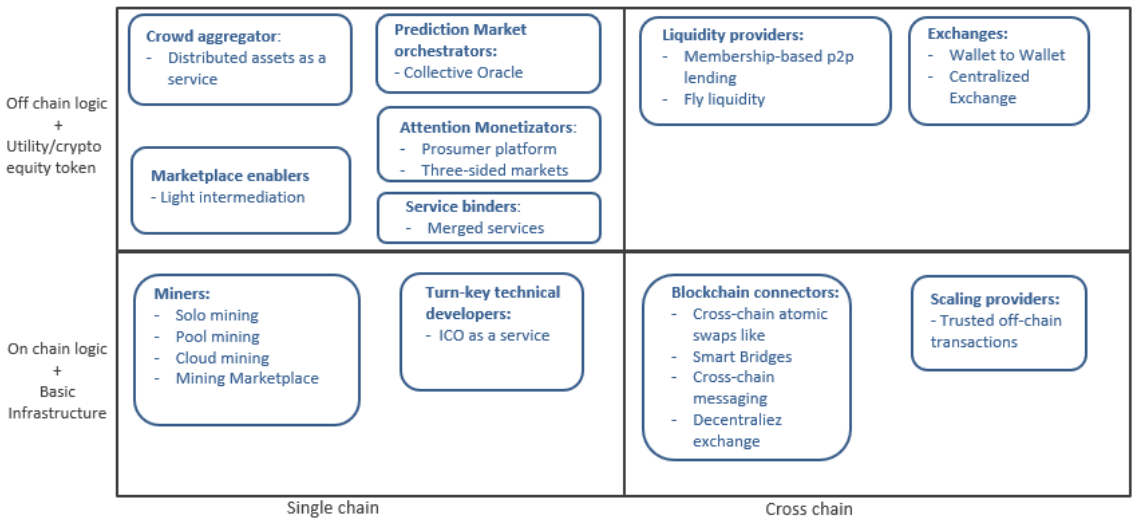

Figure 23 - Archetypal business models

However, a deeper consideration is needed. From the study of all the sources (whitepapers, bluepapers and media channels) emerges clearly the different maturity level and business awareness among the projects. Considered this, is offered the Maturity Model Framework in order to analyze the maturity level of these archetypes.

6.2 Maturity model framework

The maturity model framework (Figure 24) has been used to highlight the maturity stage of the business model under examination. The maturity business levels are composed as follows:

- "User's base" refers to the capability of the company implementing the business model under spotlight, to identify and target a specific customer segment.
- "Value generation" refers to the capability of the company to generate a flow of value for the specific customer segments and for itself.
- "Value appropriation capability" refers to ability of the company to internalize a share of the value created, generating a recurrent revenue stream in order to ensure a robust and sustainable business model.

		Business maturity levels		
	Archetypal Business models	Users' base	Value generation	Value appropriation capability
Miners	Pool ining	✓	✓	✓
	Cloud mining	✓	✓	✓
	Solo mining	✓	✓	✓
	Mining marketplace	✓	✓	✓
Turn-key technical developers	ICO as a service	✓	✓	✓
Liquidity providers	Membership-bases p2p lending	✓	✓	✓
	Fly liquidity	✓	✓	✓
Exchanges	Wallet to Wallet	✓	✓	✓
	Centralized exchange	✓	✓	✓
Service binders	Merged services	✓	✓	✓
Crowd aggregator	Distributed assets as a service	✓	✓	✓
Marketplace enablers	Light intermediation	✓	✓	✓
Attention monetizators	Three-sided market	✓	✓	✓
	Prosumer platform	✓	✓	✗
Prediction market orchestrators	Collective oracles	✓	✓	✗
Blockchain connectors	Decentralized exchange	✓	✓	✗
	Cross-chain atomic swaps	✓	✗	✗
	Smart Bridges	✓	✗	✗
	Cross-chai messanging	✓	✗	✗
Scaling providers	Trusted off-chain transaction	✓	✗	✗

Figure 24 - Maturity model framework

The maturity model framework highlights that seven out of twenty candidate archetypal business models cannot be considered as such. They, in fact, are still not able to generate a flow of value to the ecosystem and/or are not able to generate revenue stream to sustain the business model. Nevertheless, even seven archetypes aren't mature enough for a complete analysis, they have been considered short/mid-term sustainable due to the resources acquired during the ICO phase.

6.3 Archetypal business models' characterization

A complete description of the other thirteen archetypal business model is offered in the next paragraphs.

6.3.1 Distributed assets as a service

The archetypal business model "Distributed assets as a service" (Figure 25) portrays a business logic centered on the intermediation of a two-sided market (Rochet & Tirole, 2006) connecting two actors: Providers and Requestors. The willingness of these two types of customers are matched on a platform where the supply of resources, such as computational power [45] and storage [46], arises from the contribution of individual providers (Golem Project, 2016); therefore peers rent resources from each other. A similar

example, for physical assets, is represented by Uber and Airbnb, respectively for automotive transportation and accommodations; today however, the market of computing and storage resources is dominated by centralized giant players such as Amazon, Google and Microsoft. Within the platform, providers are able to monetize the lending of an "under-utilized asset" [87] and requestors are able to obtain this asset at a cheaper price compared to traditional marketplaces [88]. The viability of this business model depends on the ratio between providers, which are willing to rent out idle resources, and requestors that ask for resources to complete tasks. A company that implements such business model provides the platform, needed to match demand and supply, and the smart contract deployment, needed to manage safely, transparently and automatically microservices and asynchronous task executions. A key element, that differentiate this business model from the one implemented by current two-sided platforms, is the cost of the infrastructure. That company doesn't need to manage a big infrastructure, because all the transactions between parties are made using the native utility token and managed through an Ethereum-based smart contract, turning in Opex a significant share of Capex. That company extracts a portion of the value generated for both actors, as mentioned before, by imposing a commission on each smart contract signed by the actors (Vorick & Champine, 2014).

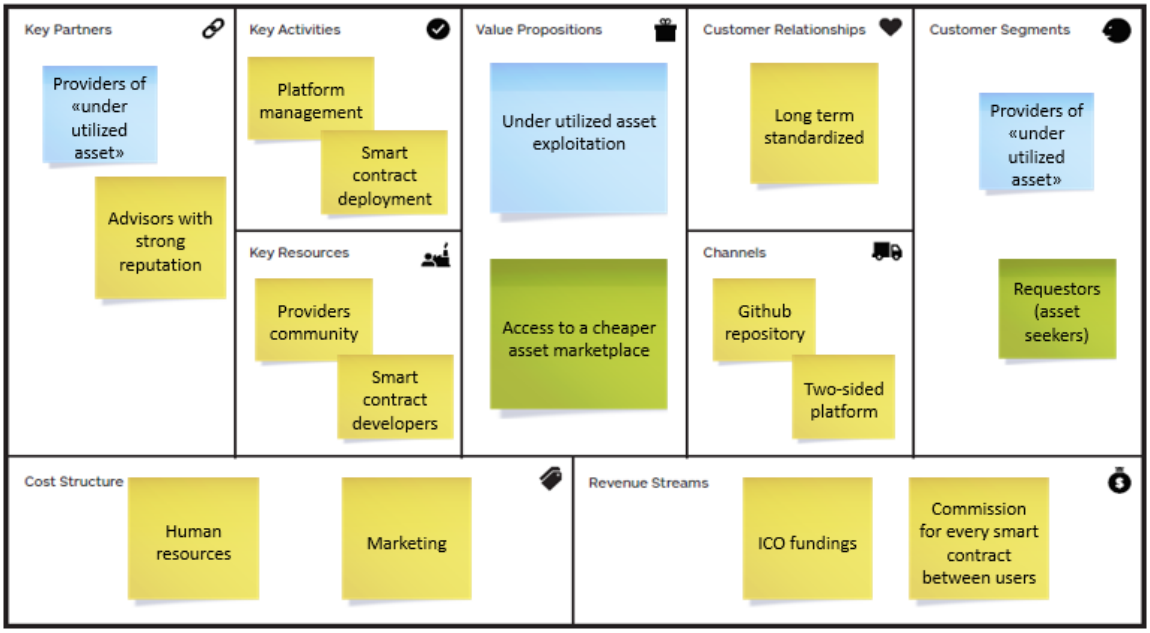

Figure 25 - Archetypal business model "Distributed assets as a service"

6.3.2 Three-sided platform

The archetypal business model named “Three-sided platform” (Figure 26) represent the ideal case of a company that proposes and manages a platform to connect three different actors, Publishers, Users and Advertisers (Brave Software, 2018). The Ad market is currently dominated by heavyweight players such as Facebook and Google and a multitude of other players standing between publishers and marketers, which internalize most of value generated by the content creators, with the following consequence: Advertisers lack of targeting and penetration, Publishers internalize a small portion of the content value and Users suffer of lack of privacy and “malvertisements”. The company that follows this business model implements an open source browser, with an integrated ad-blocking, in order to anonymously monitor user attention and use this information to build a fair attention monetization scheme [89]. The payments have to occur through a utility native token (Erc20) and managed by smart contracts running on top of a blockchain, such as Ethereum, in an open and transparent manner. A company implementing this business model uses a transparent algorithm to measure the attention and calculate the yields for the actors, relying on blockchain for the security of the payments. The company extracts a portion of the value generated, setting a placement share for every payment from the advertisers to publishers and users, which are rewarded for the contents creation and for their attention respectively. Looking at the case of studies, Brave is the only company that is currently implementing this business model.

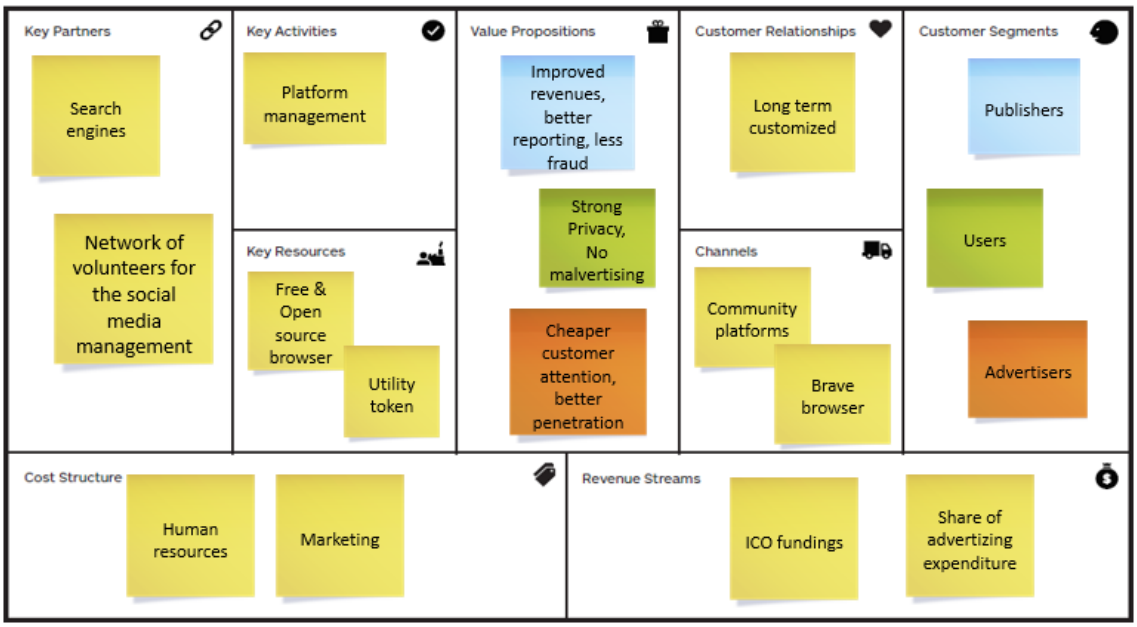

Figure 26 - Archetypal business model "Three-sided market"

6.3.3 Light Intermediation

The archetypal business model named “light intermediation” (Figure 27) represents the ideal case of a company that acts as intermediary between users which aim to trade a specific asset, re-imagining the network as a decentralized peer-to-peer blockchain based trading platform. Blockchain provides significant benefits to this kind of marketplace: in the case of Populous (Williams, 2017a), blockchain eliminates geographic limitations on invoice trading, which is the largest barrier to entry for both sellers and investors and in the case of Power Ledger (Power Ledger Pty Ltd, 2017) blockchain enables a platform for energy trading among prosumers without relying on a central players. All the payments within the platform are made with a native utility token, managed by smart contracts running on the Ethereum blockchain, ensuring borderless and trusted transactions. Regarding the economics surrounding the business model, the company deploys smart contracts used by the platform on which it charges a fee every time a contract is signed. As mentioned before, case studies representing instances of this archetype are Populous and Power ledger.

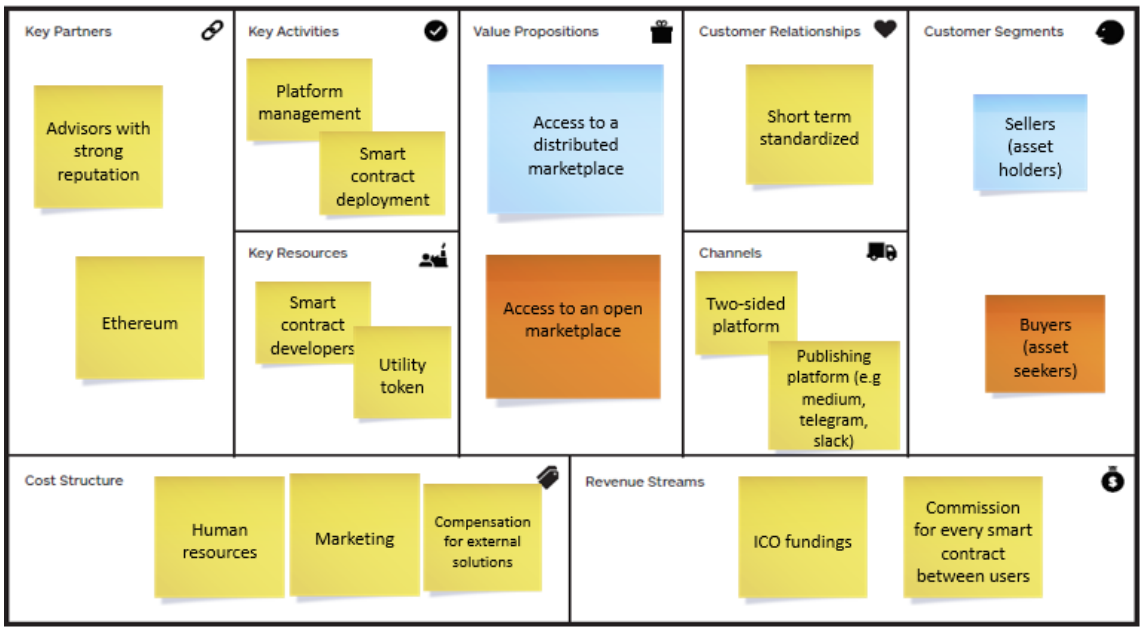

Figure 27 - Archetypal business model "Light intermediation"

6.3.4 Merged services

The archetypal business model named “Merged services (Figure 28) portrays a business logic centered on offering a payment system tied up with additional value-added services (e.g. messaging/ application gateway or trust/reputation). All the payments are managed by smart contracts running on Ethereum blockchain. In order to successfully implement such business model and increase the value of the company, is crucial to reach a mass

adoption and exploit network effect, because “the more users there are, the more valuable it is” (Ruckij, 2017). In order to create and exploit network effect, a possibility is to implement the well-known “Bowling pin strategy” (Moore, 1999) which consist in starting with a niche market, which in this case is represented by the still small crypto community, and then moving to broader market (Ruckij, 2017). The utility token plays a key role in creating network effect and stimulating the development of additional component (Status IM, 2017) by the users themselves and participating to the company revenues. Those revenues came from the fees charged to every payment based on a fixed percentage of the amount exchanged. Looking at the case of studies, Status and Monetha are companies that are currently implementing this business model.

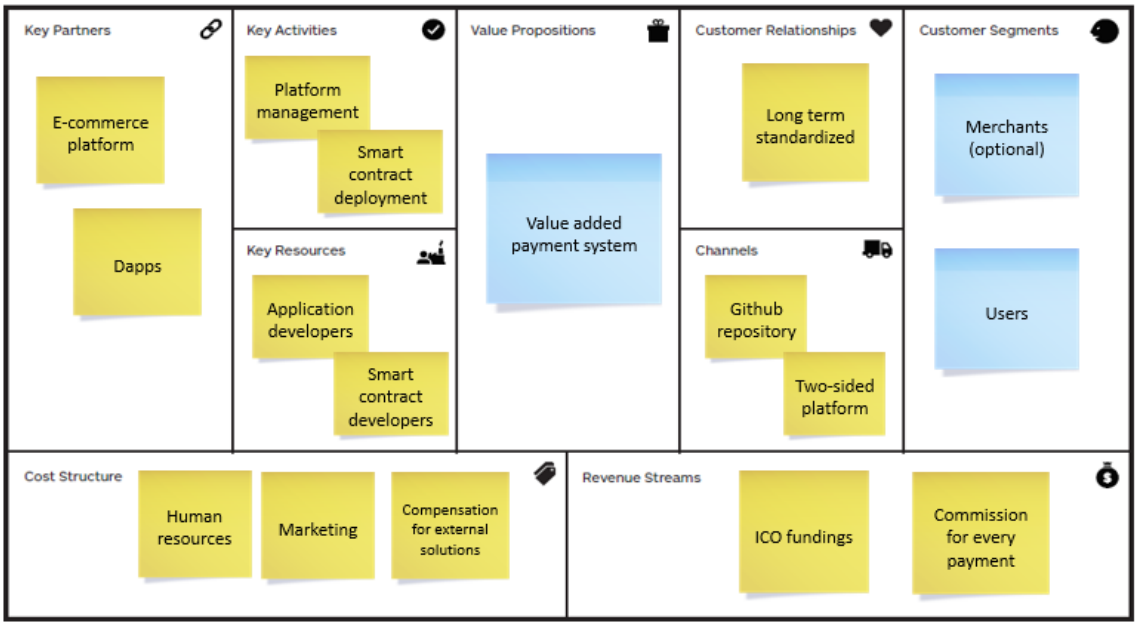

Figure 28 - Archetypal business model "Merged services"

6.3.5 ICO as a service

The archetypal business model named “Openness as attraction tool” (Figure 29) portrays a business logic centered on two main services: the first is training, directed to single developers or companies to get them involved in the blockchain ecosystem, through workshops and hackathons [90]; the second is consultancy, directed particularly to companies or teams that aim to build a blockchain based project [91] but missing some competences. Companies that implement this business model sell complementary and tailored services based on open source code, with special mention to ICOs, managed from the development, going through to the launch, to the support after launch. [92]. Most of the actors resorting to this business model offer a standard path for the ICOs: the “technical design and consulting phase” identifying the marketing strategy, the “technical

development phase", the "outreaching phase", the genuine phase of launching and the "support phase", including the set-up of an helpline for technical support. Reasoning in terms of revenues, most of them derives from the ICO launch, where the company takes as remuneration a fixed fee plus a percentage fee on the token crowd-sale; the amount of the fixed fee generally depends on the packages chosen. The remaining part of the revenue is generated from the academy activities. Looking at the case of studies, Consensys, Leeway Hertz, CoinFabrik, Oodles Technologies and Syscoin are companies that are currently implementing this business model.

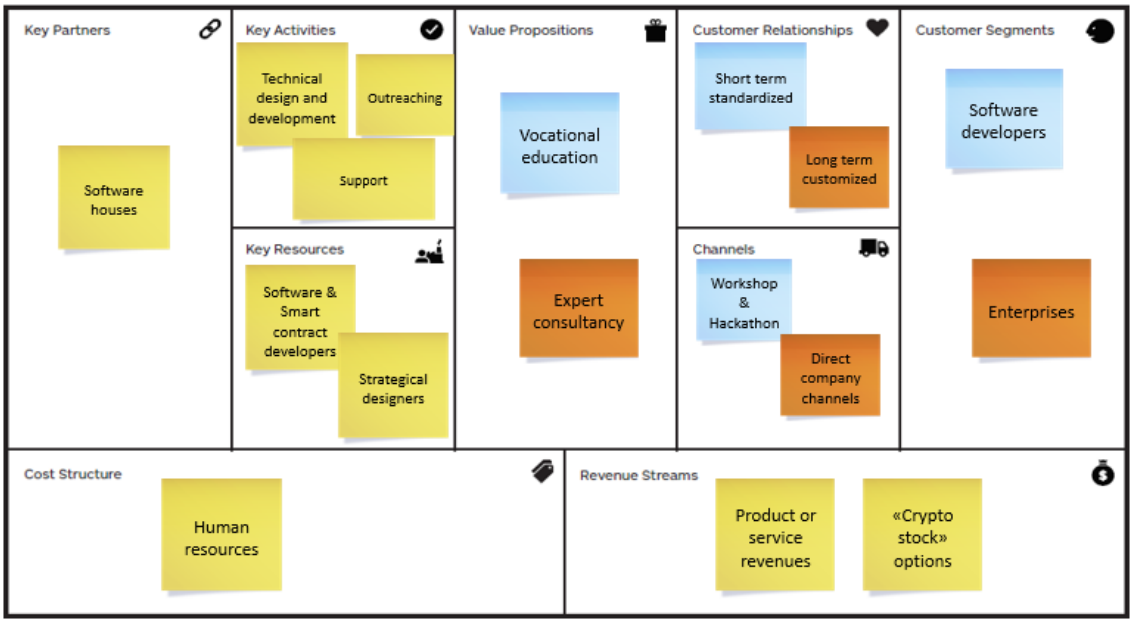

Figure 29 - Archetypal business model "ICO as a service"

6.3.6 Solo mining

The archetypal business model named "Solo Mining" (Figure 30) is implemented by single companies or single individuals that use their own specialized mining hardware to "mine" the blocks in one of those blockchain that implement the Proof of work procedure to accepting blocks (Nakamoto, 2008a) (e.g. Bitcoin, Ethereum, Litecoin, Monero, Zcash, Dash). It is recalled that, in other blockchains that use different procedure such as Proof of Stake (King & Nadal, 2012) or Delegated Proof of Stake [93] (e.g. Lisk, Eos, Bitshares), mining procedure have been replaced by validation procedure, which doesn't require significant investments in hardware and expenses in energy consumption.

Mining consists of the following steps [94]: bundling transactions, broadcasted on the peer-to-peer network, into a block; verifying that all transactions in the block are valid; identifying the most recent block on the longest chain and use that block hash as header into the new block; solve the proof of work problem before the other peers on the network;

broadcast the block to the peer-to-peer network if the solution of the problem has been found.

If the block broadcasted is accepted by the network, the miner receives the full amount of the block reward plus any transaction fees (e.g. in the current four-year-period the block reward for Bitcoin blockchain is 12,5 bitcoin).

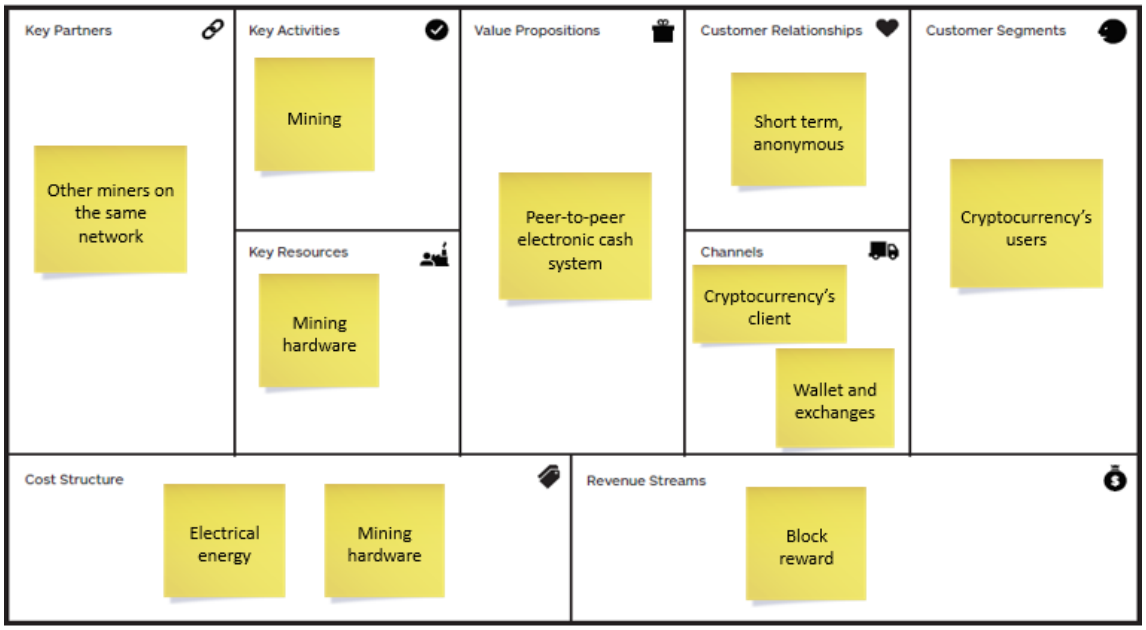

Figure 30 - Archetypal business model "Solo mining"

6.3.7 Pool mining

The archetypal business model named “Pool Mining” (Figure 31) portrays a business logic centered on collecting hashing power from different single miners, increasing the individual possibilities of mining a block [94], which can be synthesized with the evocative sentence “many hands make light work” . Mining a block alone (as mentioned in solo mining) is very unlikely if the miners doesn’t have a huge hashing power, so in a pool mining a certain number of miners team up and agree to split the block reward. In this respect, pool mining allows for risk diversification and investments burden sharing, due to the increasing requirements in terms of performance. The pool acts as a coordinator for all the participants and carries out the following functions [95]: Taking the pool members hashes, looking for block rewards, recording how much work all the participants perform and assigning block rewards proportionally, accordingly a specific payout scheme, to all the participants. Among the different reward schemes, the three most popular are [94]: Pay-per-share, where each miner gets paid an amount for every share they submit; Pay-per-last-number-of-shares, where each miner gets paid on the last

number of shares after a block is found; Proportional, where each miner gets paid on the proportion of shares since the last block.

In order to generate revenues, the pool takes a fixed fee on each block mined using the pool. Looking at the case of studies Antpool is currently implementing this business model.

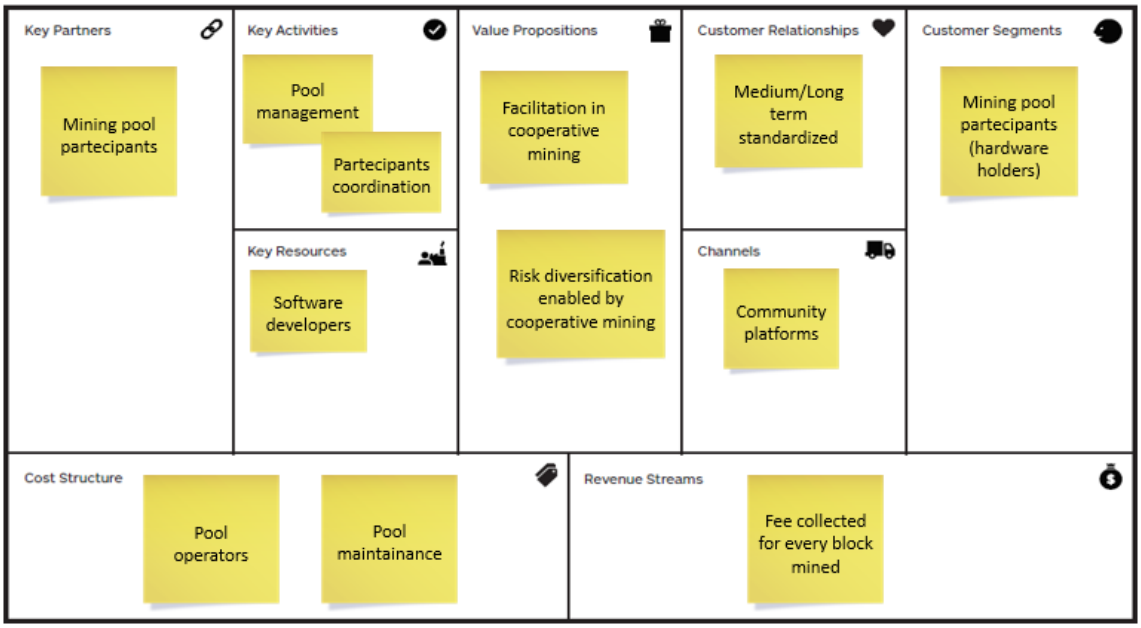

Figure 31 - Archetypal business model "Pool mining"

6.3.8 Cloud mining

The archetypal business model named “Cloud Mining” (Figure 32) portrays a business logic centered on offering to enter in the mining business to small and medium investors without the need of a huge commitment in mining hardware. The company that implement this business model make a significant investment on hardware for a single or, more often, multiple cryptocurrencies and handles the issues of correct functioning and maintenance. In order to reduce the cryptocurrencies exchange risk and to gain a recurring revenue stream, the company rent portion of the hashing power to investors, signing long contract (from at least one year to an unlimited period) in fiat currencies. The choice on which pool to mine is left up to the single investors. Looking at the case of studies Genesis mining and Hash-flare are currently implementing this business model.

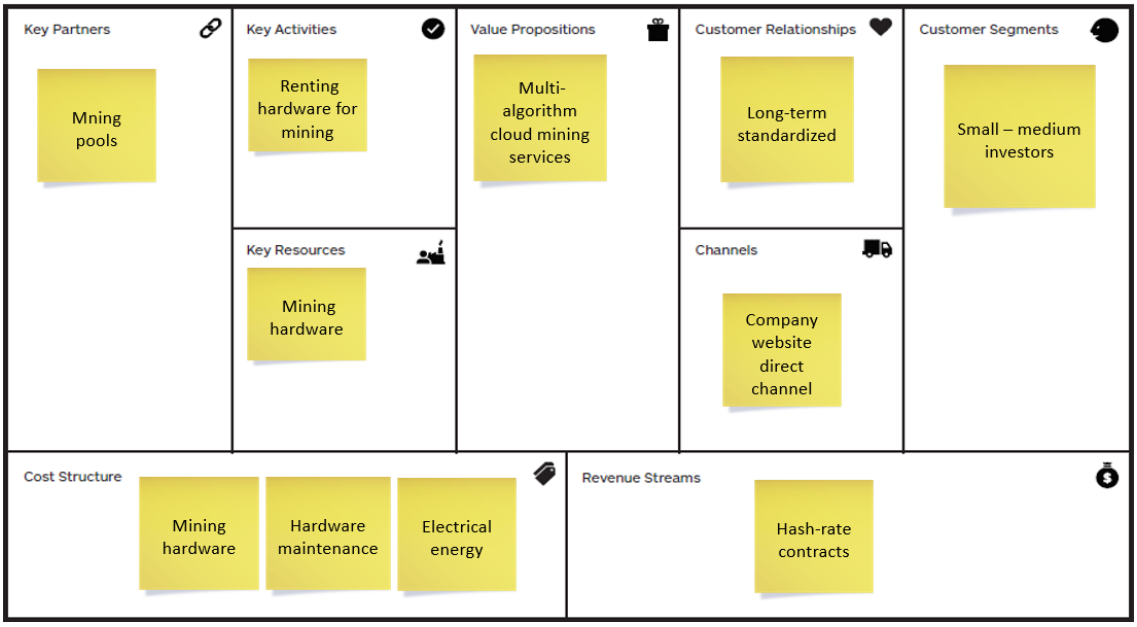

Figure 32 - Archetypal business model "Cloud mining"

6.3.9 Mining marketplace

The archetypal business model named “mining marketplace” (Figure 33) represents again the ideal case of a two-sided market, where the company acts as intermediary between users which aim to trade hashing power. From the buyer point of view, this solution may be preferable rather than resorting to cloud mining platforms, because is more flexible and doesn’t require long term contracts. From the seller point of view, it may be preferable compared to pool/solo mining, because renting hashing power on such a platform generate a regular and recurring revenue stream, which otherwise is uncertain and not definable in advance. Furthermore, to every user within the platform is assigned a wallet that works as a pointer for every payment. The company act as a coordinator of the platform, manages and develops it and secures the wallets. To cover these costs and generate revenues different types of fee are set [96]: withdrawal fees from the company’s wallet, deposit fees to the company’s wallet, services fees for buying hashing power, service fees for selling hashing power. Looking at the case of studies, Nicehash is the only company that is currently implementing this business model.

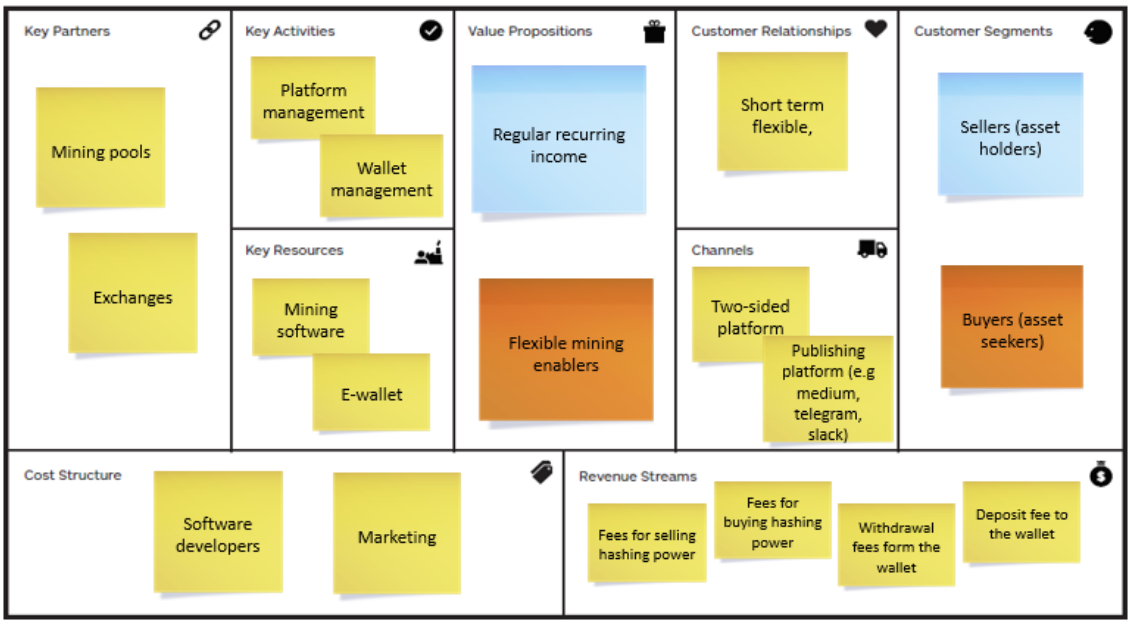

Figure 33 - Archetypal business model "Mining marketplace"

6.3.10 Membership based peer-to-peer lending

The archetypal business model named “membership based peer-to-peer lending” (Figure 34) represents once again the ideal case of a two-sided market that allows two different types of users to leverage their blockchain assets as collaterals to get cash loans (SALT Technology Ltd., 2017). The platform acts as intermediary between “borrowers” who gain the access to the value of their blockchain based assets without the need to liquidate their investments and “lenders” who receive as collateral a blockchain based asset which is more liquid and more transferrable compared to traditional collaterals (e.g. real estate). The agreements between borrowers and lenders are automatically managed by a smart contract (SALT Technology Ltd., 2017) which has different functions: stores in a multi-signature secure wallet the blockchain based collaterals; relies on an oracle in order to control the loan-to-value ratio and automatically fix the over or under collateralization of the loan; tracks the accuracy of cashflows between borrowers and lenders. The monetization of this archetype is based on different tiers of membership that can be purchased exclusively through the native platform’s utility token. Looking at the case of studies, SALT is the only company that is currently implementing this business model.

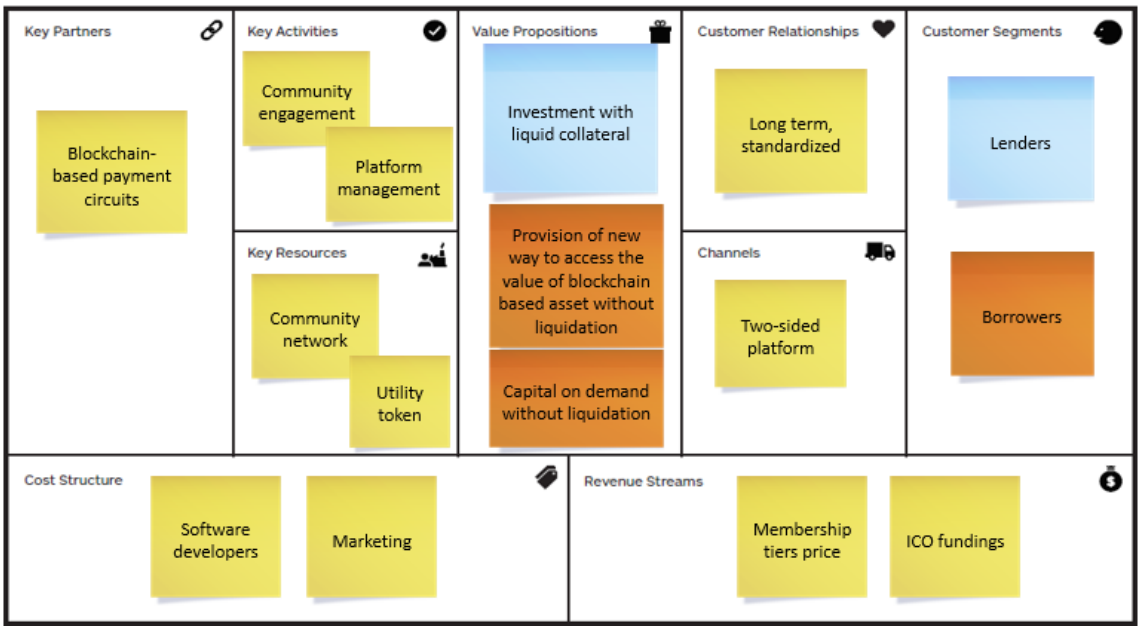

Figure 34 - Archetypal business model "Membership based peer-to-peer lending"

6.3.11 Fly liquidity

The archetypal business model named “Fly liquidity” (Figure 35) portrays a business logic centered on facilitating the blockchain-based assets’ usage for every day payments. A key product provided is a multi-currency wallet, allowing users to store privately and securely their own private keys, to secure the different cryptocurrencies which can be spent by the users through the smartphone, using an app implemented by the company, or through a credit card issued by the company itself (TenX Pte Ltd, 2017). The conversion in fiat currency happens in real time when the payment occurs, and the merchant receive fiat currency trough already established payment circuits such as Visa or Mastercard, with which, a company implementing this business model, has established a partnership. Similarly to the archetypal business model “smart payments”, the utility token plays a key role in creating a network effect, which is a clear success factor for the sustainability of the business model. Every time a payment occurs, the users will be rewarded with the native utility token. Then, every token holder will receive a percentage of the entire payment volume occurred on the company circuits. (TenX Pte Ltd, 2017). Looking at the economics, the major source of income come from the ICO and the appreciation of the token not already issued, while the recurring revenues are generated by imposing fees on transactions (withdrawal and deposit) to the wallet [97]. Looking at the case of studies, TenX is the only company that is currently implementing this business model.

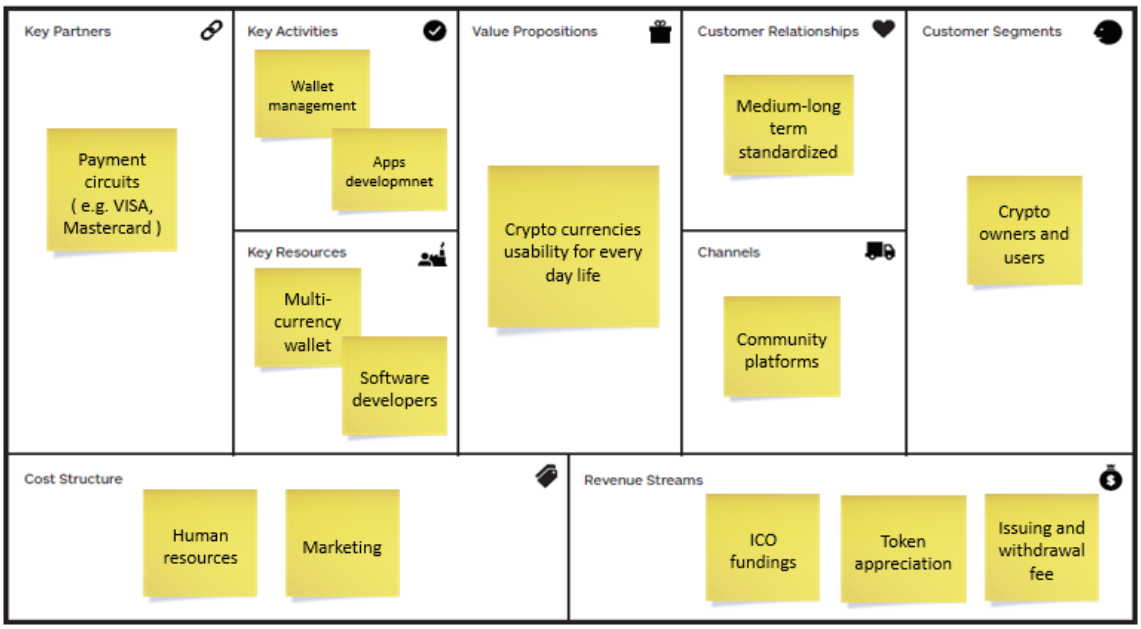

Figure 35 - Archetypal business model "Fly liquidity"

6.3.12 Centralized exchanges

The archetypal business model named “Centralized exchange” (Figure 36) portrays a business logic centered on providing a global cryptocurrency trading platform. A majority share of exchanges allows users to enter within the platform with fiat currency, acting as cryptocurrency’s gateway, a minority share, instead, have a strict “No fiat policy”. The platform offers various features ranging from the general cryptocurrency exchange to real trading. These companies rely on Banks or other institutional organizations regarding the management of Anti-Money Laundry (AML) procedures and Know Your Customer (KYC) procedures, which are needed to deposit in fiat currencies or withdrawals. Some companies resorting this archetype, created a utility token, sold through an ICO. Tokens will have a dual purpose: aiming to create a superior network effect, as we mentioned in “Cross-currency gateway” and “smart payment” business models, catalyzing a mass adoption through fee’s incentivization for token holders (Binance labs, 2017); the secondo motivation is a form of funding for the platform.

Since the exchanges taken in consideration are centralized, a significant cost is represented by the server machines on which running the platform and security management, because in these companies all the user’s funds, both fiat and crypto, are into the company’s wallet.

The two major source of recurring revenue stream are: arbitrage on exchange rate and, in a larger portion, fees on transactions and on withdrawals.

Looking at the case of studies Binance and Coinbase are currently implementing this business model.

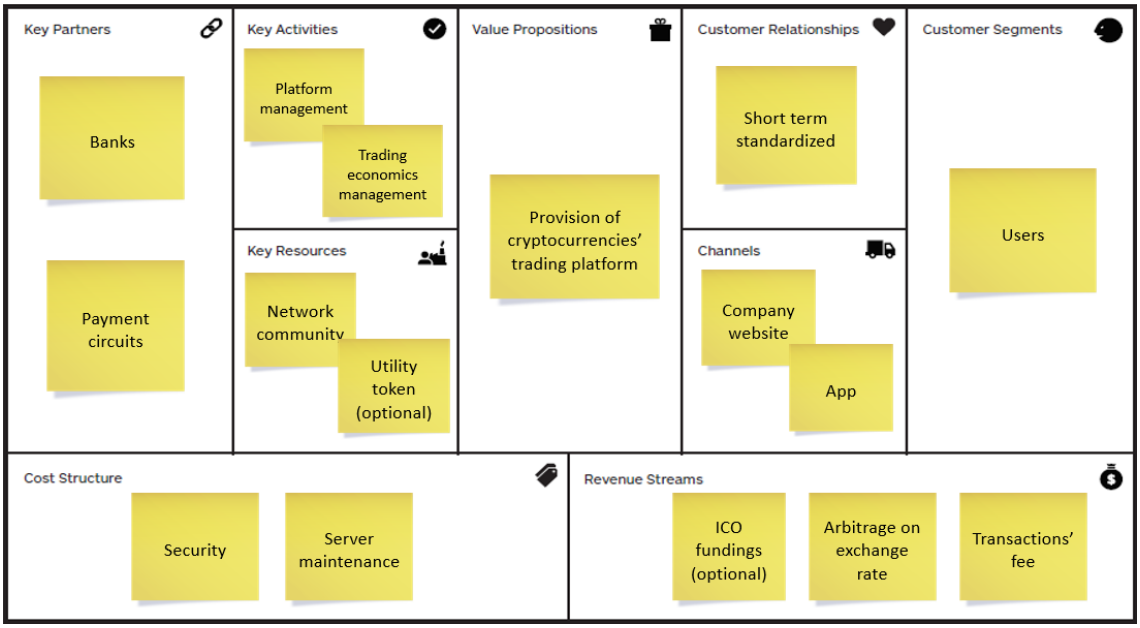

Figure 36 - Archetypal business model "Centralized exchange"

6.3.13 Wallet to wallet exchange

The archetypal business model named "Wallet to wallet exchange" (Figure 37) portrays a business logic centered on providing a global cryptocurrency exchanging platform. Differently from the previous archetypal business model dubbed "Centralized exchange" where the users funds have to be held by the exchange, the company implementing the business model now under lenses, doesn't propose a custodianship for users' funds (Shapeshift, 2016), which are held directly by the users themselves. Moreover, the company doesn't require any account and any information for the AML or KYC: the user just insert the destination address and the refund address, the amount of cryptocurrency to exchange and that's all [98]. The value proposition is directed also to merchants, allowing them, trough an API, to receive and send many different cryptocurrencies [99]. Looking at the economics underlying the business model, the cost structure is very lean and the major share is represented by the cryptocurrencies' reserves, held by the company ensure a fast exchange [100], while, regarding the revenue stream, the only source is arbitrage on exchange rate, offering a profitable exchange rate and source coins in other exchanges at a lower cost to replenish coins inventories [101]. Looking at the case of studies, ShapeShift is the only company that is currently implementing this business model.

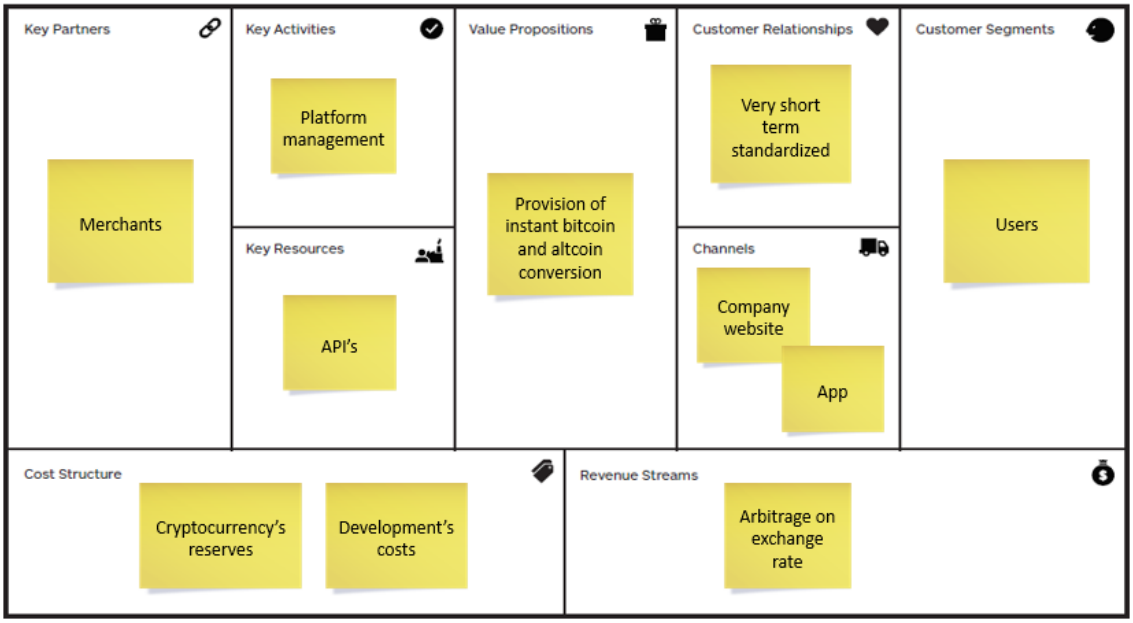

Figure 37 - Archetypal business model "Wallet to wallet exchange"

7 Conclusions and opportunities for future research

This research thesis has been intended to bridge the prominent gaps found in the various sources examined:

- Paucity of non-hyper technical description of the blockchain ecosystem and a transverse study able to merge together both technological and business logic.
- Lack of tools to map uniquely the blockchain-based projects.
- Abundance of anecdotal evidences coming from stand-alone exemplary cases and, consequently, lack of systematic and strict studies with the purpose to identify which are the preeminent actors that are currently composing the blockchain ecosystem.
- Dearth of a systematic approach on recognizing the business models implemented by the actors' multitude with blockchain environment. Previous studies portrayed blockchain-enabled business models in a fragmented manner, focusing only on few stand-alone exemplary cases in the limelight while losing sight of the 'big picture'. Acknowledging this shortcoming, the present thesis resorts to an ample and variegated portfolio of case studies to capture the inherent heterogeneity existing in the blockchain universe and to distill recurring patterns observed at empirical level.

Advancements with respect to the state of the art may be recapitulated looking at findings obtained in response the three research questions that triggered my reflection.
In the matter of the first research question, the observation of the already existent maps and the admission of the non-viability to use them for the ecosystem description, has led to the formalization of a brand-new framework that provides, hopefully, a robust basis for a clear comprehension of the different strategic positioning of the blockchain-based project. Such a framework, in the form of a 2x2 matrix, categorizes the blockchain-based business projects among two directions: the technological axe, which, taken on his own, could give information about the degree of vertical integration of the project, and the positioning axe.
Regarding the second research question, the examination of blockchain-based cases and the subsequent inclusion of theme within the brand-new matrix, has led to the identification of the preeminent archetypal actors that are currently dominating the

blockchain environment. In order to select the main project, it has been started by a long list of cryptocurrencies. The transition between long list and short list has occurred, as mentioned in the methodology chapter (3.2.1), through a mixed approach.

Apropos of the third research question, the cross-case analysis on the afore-mentioned case studies has led to the identification and the description of the archetypal business models implemented by the archetypal actors, which put blockchain at the core of the organization, in the pursuit of profit.

In the conclusive remarks, is crucial to focus on the particular aspect of business model. As mentioned in the previous chapter, not every archetypal business model has the same maturity in terms of revenue generation logic and value appropriation capability.

7.1 Three-step maturity

The cross-case analysis and the characterization of the archetypal business models has emphasized the difference on maturity and business logic aimed to generate revenues among the different archetypes. Specifically, three different steps have been identified (Figure 38).

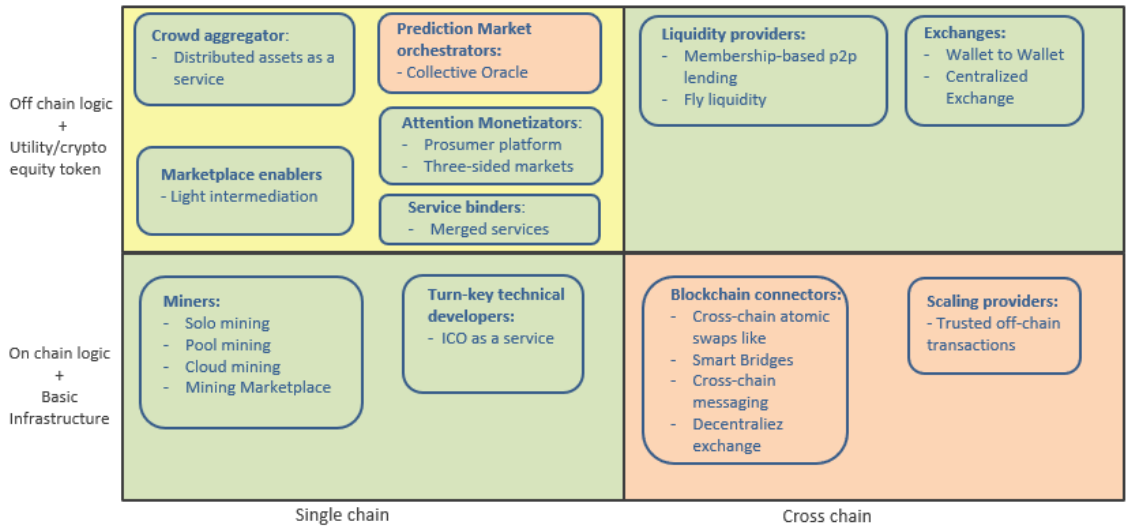

Figure 38 - Archetypal business model c

The three steps are (Figure 39):

1. Actors within the green quadrants, solved the "chicken-and-egg" problem, created the asset and developed application to exchange and monetize it.
2. Actors within the yellow quadrant, built ecosystem on top of the infrastructure created by actors in the previous step

3. Actors within the red quadrant are trying to develop solution for the congestion and the lack of interoperability of the other 3 quadrants.

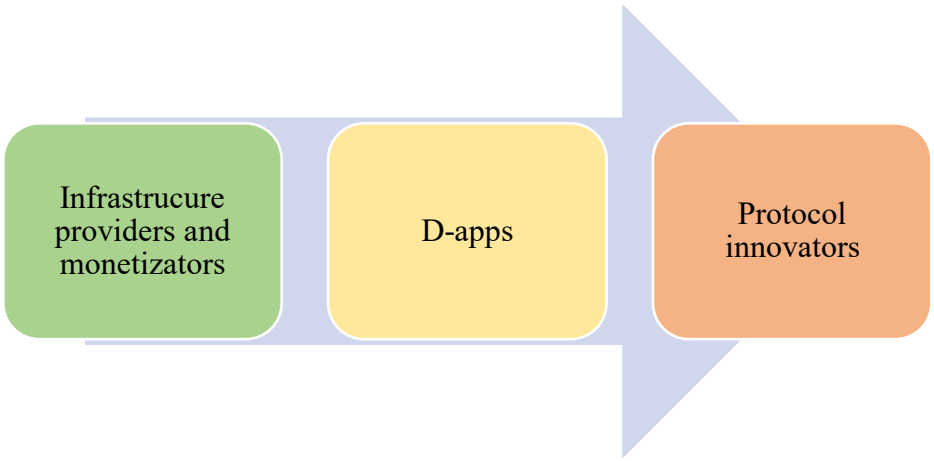

Figure 39 - Three steps maturity

A further argument to support the claim that infrastructures providers and exchanges have the most developed value generation logic, comes from the quantitative analysis of the single cryptocurrency's market capitalization (Figure 40).

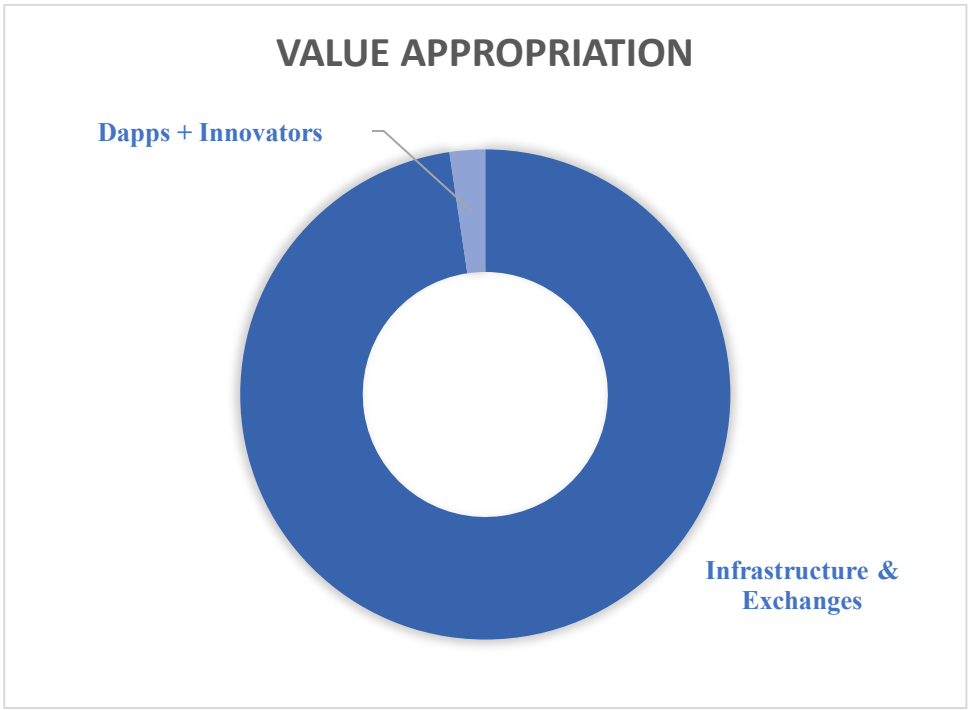

Figure 40 - Protocols' value

Of all the market capitalization of short-list cryptocurrencies (Appendix 1) 307,6 B$, infrastructure and financial services represent the 97,6%, with a market capitalization of

300,3 B$; the decentralize applications and the protocols innovators reach a market capitalization of 7,3 B$.

The greater development and maturity of the infrastructure and financial services is definitively explained by the enhanced capacity to attract funds from the market, in this particular moment of the blockchain life-cycle.

The final point that needs to be remarked is the high concentration within the infrastructures protocol (Figure 41).

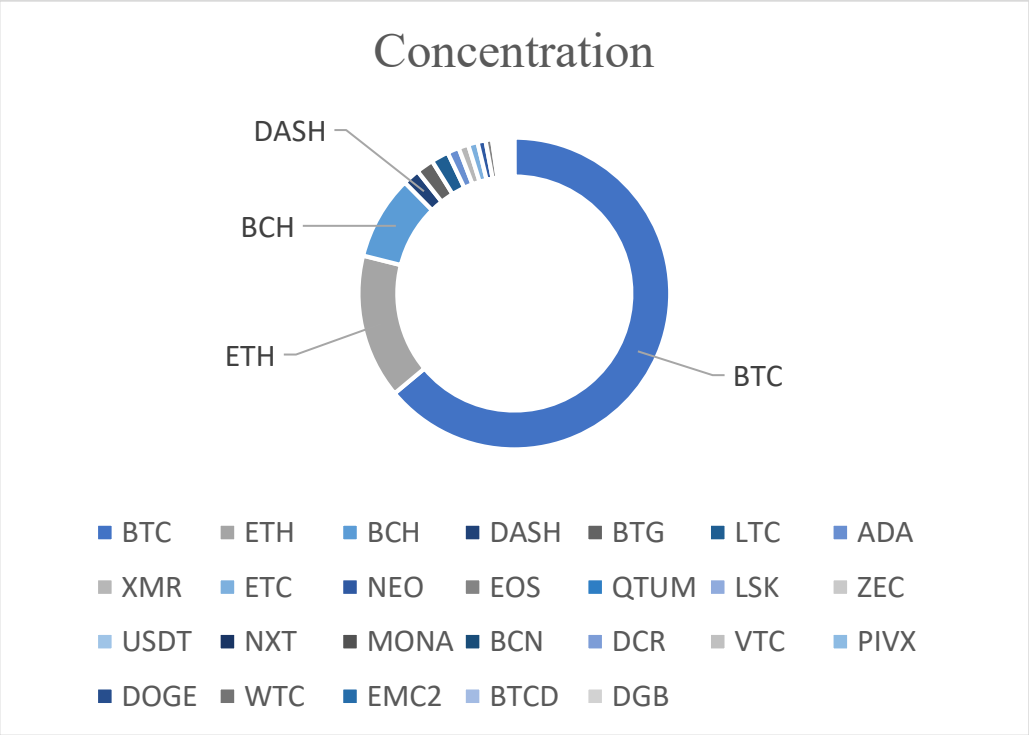

Figure 41 - Protocols' concentration

In order to highlight the high concentration of the market (Table 6), the Concentration ratio 4 has been calculated [102]

Table 6 - Protocols' concentration ratio

Cryptocurrency	Concentration ratio
Bitcoin (BTC)	63.93%
Ether (ETH)	14.98%
Bitcoin cash (BCH)	8.69%
Dash (DASH)	1.73%

The c4 concentration ration, calculated as the sum of the concentration ratio of the first four crypto, is 89.34%. This data shows a very significant concentration among the protocols. This suggests the hypothesis that probably a dominant design is emerging, the same as the internet evolution. On early stage of internet environment, a proliferation of different protocols was on the stage, but then just a few emerged, and then value has migrated from the protocols to the applications. In this early stage of blockchain ecosystem, seems to be happening the same: a proliferation of protocols, which are currently internalizing most of the ecosystem value, from which few dominant designs are emerging. It's conceivable that even in blockchain ecosystem, in the foreseeable future, the applications will achieve an ever-wider value.

7.2 Open issues and Opportunities for future research

In this last section will be presented some problems encountered during the thesis activity. It's possible to determine three main areas:

- Technical
    - Scalability: the scalability problem refers to the limits on the amount of transactions a decentralized blockchain is able to process. By way of example, let's remember that Bitcoin processing capacity is estimated under 7 transactions per second [103], Ethereum 20 transaction per second, while Visa is capable of processing more than 56000 transaction per second [104]. Lightning Network and Raiden are two projects aiming to provide an off-chain scaling solution for Bitcoin and Ethereum respectively.
    - Interoperability: Currently, blockchain networks exist in isolation with no communication or interoperability between them. This is a significant problem that needs to be solved for the success of the decentralized ecosystems (Wood, 2017b).
- Policy
    - ICO regulation & Consumer protection rights: ICOs have come under the careful monitoring from regulators across the world, mainly due to their methods of raising capital, without offering any kind of guarantee [105]. In order to protect customers from scams and fraudulent practices some governments have banned ICO, while social media and web giants have banned ICO promotion and marketing [106].

- Cryptocurrencies in terms of taxation: Treating cryptocurrency, such as Bitcoin, as property, how it happens now, creates a potential accounting challenge for taxpayers using cryptocurrencies for everyday purchases. That's because a taxable transaction takes place every time that a cryptocurrency is exchanged but is nearly impossible to track [107].
- How to consider tokens?: As mentioned earlier, not all the cryptocurrencies can be considered the same. Some of them are security-like others are just payment systems. It can be difficult to elaborate a single regulation for all the coins.

- Ethical
  - Mining energy consumption: According to the statistics of "The guardian" [108] Bitcoin mining network uses more electricity in a year than the whole Ireland. The proof-of-work is certainly very expensive, however it guarantees the immutability of the ledger.

  - Code is law? The DAO problem: Smart contracts are meant to be stand-alone agreements, not subject to interpretation by outside entities or jurisdictions. The code itself is meant to be the ultimate arbiter of "the deal" it represents [109].

    It's interesting the story of the DAO, a decentralized autonomous organization launched in April 2016. During the DAO ICO, an unknown hacker started draining more than 3.6 M of Ether. The only way to reverse the transactions and return back the money, would have been at least 51% of all nodes to agree to such a "honest" collusion, something that should never happen in a decentralized ecosystem. The goal of a decentralized network is, in fact, that anyone could do that, otherwise the network itself would become untrustworthy.

    At the end, in order to refund the lost money, Ethereum opted for an hard fork, sending back the funds to the original owners [110].

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Appendix

Appendix 1 - Short list

Data retrieved on 05/12/2017, Source: Coinmarketcap

1	Bitcoin	BTC	$191.280.165.300	$11.440.80	16.719.125
2	Ethereum	ETH	$44.819.393.723	$466.25	96.126.355
3	Bitcoin Cash	BCH	$26.021.931.238	$1.545.50	16.837.225
4	Ripple	XRP	$9.735.280.716	$0.252060	38.622.870.411 *
5	IOTA	MIOTA	$6.325.877.380	$2.28	2.779.530.283 *
6	Dash	DASH	$5.919.022.407	$765.46	7.732.635
7	Bitcoin Gold	BTG	$5.423.874.543	$325.02	16.687.561
8	Litecoin	LTC	$5.409.892.250	$99.96	54.120.733
9	Cardano	ADA	$3.643.246.025	$0.140519	25.927.070.538 *
10	Monero	XMR	$3.070.156.787	$198.93	15.433.120
11	Ethereum Classic	ETC	$2.968.375.735	$30.27	98.065.880
12	NEO	NEO	$2.490.468.500	$38.31	65.000.000 *
13	NEM	XEM	$2.469.744.000	$0.274416	8.999.999.999 *
14	EOS	EOS	$2.028.941.457	$3.93	516.822.420 *
15	Stellar Lumens	XLM	$1.630.766.740	$0.091808	17.762.892.362 *
16	BitConnect	BCC	$1.032.794.911	$324.20	3.185.692
17	Qtum	QTUM	$973.992.780	$13.22	73.696.328 *
18	OmiseGO	OMG	$967.227.674	$9.48	102.042.552 *
19	Lisk	LSK	$910.271.252	$7.88	115.575.324 *
20	Zcash	ZEC	$899.660.296	$325.91	2.760.456
21	Tether	USDT	$814.399.936	$1.00	814.017.348 *
22	Hshare	HSR	$739.681.035	$17.47	42.329.410

23	Stratis	STRAT	$640.305.776	$6.49	98.647.294 *
24	Waves	WAVES	$633.145.000	$6.33	100.000.000 *
25	Populous	PPT	$541.918.380	$13.14	41.252.246 *
26	Ardor	ARDR	$524.953.256	$0.525479	998.999.495 *
27	Nxt	NXT	$457.832.682	$0.458291	998.999.942 *
28	MonaCoin	MONA	$442.496.092	$7.93	55.774.100
29	Augur	REP	$401.398.800	$36.49	11.000.000 *
30	Ark	ARK	$390.181.069	$3.98	97.981.284 *
31	BitShares	BTS	$378.853.053	$0.145509	2.603.640.000 *
32	Bytecoin	BCN	$373.375.412	$0.002037	183.253.534.612
33	Siacoin	SC	$363.251.454	$0.011595	31.329.094.665
34	Decred	DCR	$342.435.408	$54.45	6.288.653
35	Vertcoin	VTC	$332.309.910	$7.95	41.782.750
36	Steem	STEEM	$326.986.113	$1.32	246.942.251 *
37	SALT	SALT	$315.642.608	$6.22	50.741.342 *
38	Komodo	KMD	$305.352.779	$2.95	103.681.282
39	PIVX	PIVX	$288.478.444	$5.24	55.052.298 *
40	Golem	GNT	$277.494.622	$0.333114	833.032.000 *
41	Dogecoin	DOGE	$256.693.485	$0.002288	112.190.227.651
42	Status	SNT	$256.381.990	$0.073875	3.470.483.788 *
43	MaidSafeCoin	MAID	$253.068.214	$0.559202	452.552.412 *

44	TenX	PAY	$252.969.526	$2.42	104.661.310 *
45	Power Ledger	POWR	$244.446.557	$0.696253	351.088.694 *
46	Binance Coin	BNB	$241.062.455	$2.43	99.014.000 *
47	DigixDAO	DGD	$239.668.000	$119.83	2.000.000 *
48	Walton	WTC	$221.426.219	$8.89	24.898.178 *
49	Syscoin	SYS	$211.857.877	$0.400253	529.309.905
50	Veritaseum	VERI	$210.287.308	$103.79	2.026.045 *

Appendix 2 – Blogposts knowledge-base

Source: Strategyzer

Title	Date	Author	Type	Keywords	Abstract	Link
Great Ideas Need Great Business Models	29/07/2014	Benson Garner	Post	Business Model Canvas, Strategyzer tool	A successful idea may fail with a business model and success with another. The Business Model Canvas is a useful tool to find a way to create, deliver and capture the value.	http://blog.strategyzer.com/posts/2014/7/25/great-ideas-need-great-business-models
Don't Fall In Love With Your First Ideas	31/07/2014	Benson Garner	Post	Prototyping, Ten Principles	At the beginning the most important thing is to rapidly explore different alternatives. Prototyping is an exploration tool that keeps failure cheap and leads to faster learning	http://blog.strategyzer.com/posts/2014/7/31/dont-fall-in-love-with-your-first-idea
Navigating Your Business Model Environment	04/08/2014	Alexander Osterwalder	Post	Market Forces, Key Trends, Industry Forces, Macroeconomic Forces	It's wrong to create a business model in vacuum. Is required to test, build, and manage it in a real context	http://blog.strategyzer.com/posts/2014/7/26/your-business-model-environment
It's Time to Fail	08/08/2014	Nabila Amarsy	Post	Testing, Vision Trap, Business Plan Trap	Is essential to test and iterate ideas in order to avoid Vision trap and Business Plan trap. An early failure is cheap and reduce uncertainty.	http://blog.strategyzer.com/posts/2014/8/5/its-time-to-fail
5 Tips to tell your Business Model as a story	11/08/2014	Nabila Amarsy	Post	Comunication of Ideas, Story, Visual Tools	Five Steps to communicate the Business Models:1) Don't Commit cognitive murder 2) Tell just the essence of the story 3) Create a thread to the story 4) Use color-coding to explain the mechanism 5) Provide evidence and mistakes made during the analysis	http://blog.strategyzer.com/posts/2014/7/26/telling-your-story
Start your morning with business news on steroids	14/08/2014	Nabila Amarsy	Codified News	Alibaba, Business Models Canvas	Business Model Canvas and Value proposition Canvas are like spectacles that help to understand business. Is important to apply them to the morning news to sharpen analytical skills	http://blog.strategyzer.com/posts/2014/8/13/business-news-on-steroids

The Future of Strategy and Innovation: Computer Aided Design (CAD)	18/08/2014	Alexander Osterwalder	Post	CAD, Design	CAD can improve 5 aspects in build and run better businesses: 1) Collaboration and Alignment 2) Speed of creating alternatives 3) Simulation 4) Tracking and Monitoring 5) Integration	http://blog.strategyzer.com/posts/2014/8/18/the-future-of-strategy-and-innovation
5 Questions You Never Dared to Ask About the Business Model Canvas	21/08/2014	Nabila Amarsy	Post	Questions, Business Model Theatre	This paper provides the answers to 5 questions about the canvas: 1) Why these nine building blocks? 2) What happens if I eliminate or change any of the building blocks? 3) Does the layout of the building blocks matter? 4) Why isn't there a bulding block for competition, problems or measurements? 5) What's the difference between a business plan and the business model canvas?	http://blog.strategyzer.com/posts/2014/8/20/5-questions-business-mode-canvas
How to Run a Tiny Multinational	28/08/2014	Strategyzer	Post	Communication, Run a multinational, Tools, Apps	How Strategyzer teamwork works: They use the right tools and application in roder to 1) Work closely without being in the same room (using Hipchat) 2)Organize the activities across 5 times zones (using Trello) 3) Building a compay culture across borders (using GoToMeeting).	http://blog.strategyzer.com/posts/2014/8/28/how-to-run-a-tiny-multinational
4 Mistakes That Can Kill Your Business Model	01/09/2014	Benson Garner	Post	Mistakes, Canvas, Questions	There are 4 lethal mistakes that can kill a Business Model: 1) Solving an Irrelevant Customer Job 2) A flewed Business Model 3) Neglecting External Threats in the Business Model Environment 4) Poor Execution. Failing with any one can kill the business, no matter how grat the product or the service is.	http://blog.strategyzer.com/posts/2014/9/01/4-mistakes-that-can-kill-your-business-model
How CVS's Business Model Smokes the Competition	04/09/2014	Nabila Amarsy	Codified News	CVS health, Changing	CVS health stops selling cigarettes to rebrand and reposition itself as a major health care player. CVS achieves two main results: 1) Rebranding enables additional value propositions 2) Improved value propositions. The system of interconnected value propositions are enabled by the rebranding and improves the entire business model.	http://blog.strategyzer.com/posts/2014/9/3/how-cvss-business-model-smokes-the-competition

Apple Pay: An Obvious Value Proposition	11/09/2014	Benson Garner	Codified News	Apple Pay, Innovation	Apple introduces an entirely new payments solution with Apple Pay	http://blog.strategyzer.com/posts/2014/9/11/apple-pay-an-obvious-value-proposition
Why Every Company Needs a Chief Corporate Entrepreneur	16/09/2014	Benson Garner	Interview	Business Model, Chief corporate entrepreneurs, Disposable company	Spending time creating a business plan for a new business that doesn't exist yet is a waste of time, moreover you should do many of these types of tests before you ever start spending money on building something. So definetly the business model canvas is the new business plan. The task of business modeling is more urgent today because business models expire sooner and all the enterprise should renew its business model in order to survive.In big companies today, besides the Chief Executive (Execution) Officer, at the same level just under the board, we need to have a second job title, the Chief Corporate Entrepreneur. The Chief Corporate Entrepreneur invents the future of the company while the Chief Executive Officer runs the existing business. Steve Blank says we may be in the age of the disposable company that gets big and then disappears.	http://blog.strategyzer.com/posts/2014/9/16/why-every-company-needs-a-chief-corporate-entrepreneur
Why I Want My Kids to Fail	23/09/2014	Nabila Amarsy	Talk	Failure, Failcon	The topic of failure is less of a taboo today though. We've embraced the startup mantra of "failing cheap and failing quickly"	http://blog.strategyzer.com/posts/2014/9/22/why-i-want-my-kids-to-fail
Why We Created Value Proposition Design	30/09/2014	Alexander Osterwalder	Post	Value Proposition Design, Value Proposition Canvas	The Value Preposition Canvas is used to: 1) describing how an organization creates value for its customers with its products and services. 2) Integration with Customer Development and Lean Startup. 3) Applying the Tools Step-by-Step	http://blog.strategyzer.com/posts/2014/9/29/value-proposition-design

10 Characteristics of Great Value Propositions	13/10/2014	Benson Garner	Post	Value Proposition, Guidelines	Great value propositions: 1) Are embedded in great business models 2) Focus on the jobs, pains, and gains that matter most to customers 3) Focus on unsatisfied jobs, unresolved pains 4) Target few jobs, pains, and gains, but do so extremely well 5) Go beyond functional jobs and address emotionaland social jobs 6) Align with how customers measure success 7) Focus on jobs, pains, and gains that a lot of people have or that some will pay a lot of money for 8) Differentiate from competition on jobs, pains, and gains that customers care about 9) Outperform competition substantially on at least one dimension 10) Are difficult to copy and unrealized gains	http://blog.strategyzer.com/posts/2014/10/13/10-characteristics-of-great-value-propositions
How Value Proposition Design Might Save your Life	23/10/2014	Alexander Osterwalder	Post	Life science, Way to explain	The Value Proposition Canvas force to 1)Show links between research, products and services making explicit what really create value. 2) To be extremely precise regarding their customers' pains and gains because it allows to evaluate if the value propositions address real customer concerns.	http://blog.strategyzer.com/posts/2014/10/23/value-proposition-design-in-the-life-sciences
Apple Pay's Uncopyable Business Model Delivers What Nobody Else Could	30/10/2014	Benson Garner	Codified News	Apple Pay, Innovation	By focusing on consumer's jobs, pains, and gains Apple designed a better mobile payments value proposition.	http://blog.strategyzer.com/posts/2014/10/30/apple-pays-uncopyable-business-model-delivers-what-nobody-else-could
Survival Of The Fittest	10/11/2014	Nabila Amarsy	Post	Startup Mistakes, Fit	Achieving fit will help to minimize the risk of failure. There are 3 kinds of Fit: 1) Problem-Solution fit 2)Product-Market fit 3) Business Model fit. How to achieve fit? Go back and forth between your original idea and the outside world, getting out of the building all along the way to directly test and experiment with customers.	http://blog.strategyzer.com/posts/2014/11/10/survival-of-the-fittest

Xiaomi Is Not (Just) A Smartphone Company	17/11/2014	Nabila Amarsy	Codified News	Xiaomi, Innovation	Xiaomi sees its smartphones as gateaways for mobile entertainment services, which would represent recurring revenues in the future. Xiaomi wants to create an ecosystem of apps available from its smartphones, therefore Xiaomi decided to invest in video content development by taking a participation in Youku Tudou (online streaming company).	http://blog.strategyzer.com/posts/2014/11/17/xiaomi-is-not-a-smartphone-company
How To Create Organizational Alignment	28/11/2014	Alexander Osterwalder	Post	Organizational Alignment, Coopilot method	This paper shows how to reach a strategic allignment. To boost strategic allignment in a practical way is necessary to focus on the business model, its environment and its strengths and weakness.	http://blog.strategyzer.com/posts/2014/11/27/how-to-create-organizational-alignment
How To Design Great Workshops	02/12/2014	Benson Garner	Post	Workshop	How to design a great workshop? In this paper is suggested to follow these 4 steps: 1) Clearly define the workshop objective 2) Use carefully selected methods and workshop exercises that contribute to the objective and to achieve the desired outputs and results 3) Avoid blah blah blah at all cost 4) Explore alternatives before making a decision	http://blog.strategyzer.com/posts/2014/12/02/how-to-design-great-workshops
Why Large Companies Can't Innovate	09/12/2014	Alexander Osterwalder	Post & Talk	Innovation, Improve & Invent	Companies who want to survive for years have to excel in execution and in the creation of new growth engines at the same time. So, on one hand improving an existing business model, and on the other hand creating an organizational space to invent business for the future at the same time.	http://blog.strategyzer.com/posts/2014/12/9/why-large-companies-cant-innovate
Fujifilm Fights Ebola And Gives You Great Skin	17/12/2014	Nabila Amarsy	Codified News	Fujifilm, Innovation	Fujifilm understood that digitisation was threatening its business model and that customers would progressively stop buying film. By referring to its own core competence invested in R&D to enter new sectors such as healthcare.	http://blog.strategyzer.com/posts/2014/12/17/fujifilm-fights-ebola-and-gives-you-great-skin

Don’t Believe Your Customers	15/01/2015	Alexander Osterwalder	Post	Customers, Methodology	Customers don’t always do what they tell, therfore is very risky to validate an idea based only on an interview, without testing it. How to verify the true interest of a customer? 1) “Fabricate” a unique link 2) Pitch and track 3) Learn about genuine interest. the key here is to don't believe in what customer say but try to dig deeper to learn about their real-world behaviour.	http://blog.strategyzer.com/posts/2015/1/15/dont-believe-your-customers
Great Execution of Bad Ideas Kills Businesses	20/01/2015	Nabila Amarsy	Post	Search and Execution phases, Value Proposition	To avoid failure, an organization that want to implement an idea should follow two step: 1) Search Phase: identifying the right value proposition and business model 2) Execution Phase: start seriously investing in marketing to acquire customers and building the infrastructure to service them.	http://blog.strategyzer.com/posts/2015/1/20/great-execution-of-bad-ideas-kills-businesses
The Risk You Are Probably Neglecting	27/01/2015	Benson Garner	Post & Talk	Innovation Models, Techology Risk	In this post is shown how most companies, of any size, tend to overlay focus on technology risk, whereas, instead, they should focus more on market and customer risk.	http://blog.strategyzer.com/posts/2015/1/27/de-risking-innovation-by-taking-risks-with-customers
Amazon Prime: There's No Such Thing As Free Streaming	29/01/2015	Nabila Amarsy	Codified News	Amazon, Bundling	Amazon decided to Bundle the online content with Amazon Prime. Amazon is hoping that online videos will attract more customers to Prime, and that Prime's other perks will encourage subscribers to shop on Amazon.com	http://blog.strategyzer.com/posts/2015/1/29/amazon-prime-there-aint-no-such-thing-as-free-streaming
Implementing Your Business Model With the Galbraith Star Model	03/02/2015	Benson Garner	Post	Star Model, Execution phase	Star model consists in five areas that should be connected and aligned to shape the decision and behaviours of the organization. 1) Strategy 2) Structure 3) Processes 4) Rewards 5) People	http://blog.strategyzer.com/posts/2015/2/03/implementing-your-business-model-with-the-galbraith-star-model
Why and How Organizations Around the World Apply the Business Model Canvas	09/02/2015	Nabila Amarsy	Post	Business Model Canvas	This paper provides some proofs of people who have used the Business Model Canvass	http://blog.strategyzer.com/posts/2015/2/9/why-and-how-organizations-around-the-world-apply-the-business-model-canvas

Roadmap To Test Your Value Proposition	17/02/2015	Nabila Amarsy	Post	Value Proposition, Testing	How to test the Value Proposition? It's a funnel with 3 steps: 1) Testing the jobs, pains and gains of the customers (Circle) 2) Testing the products, services and features (Square) 3) Testing the willingness to pay of the customers (Rectangle, that is the revenue streams of the Canvas)	http://blog.strategyzer.com/posts/2015/2/17/roadmap-to-test-your-value-proposition
5 Common Mistakes to Avoid When Using the Value Proposition Canvas	19/02/2015	Benson Garner	Post	Value Proposition Canvas, Mistakes	The five common mistakes described are: 1) Not looking at the Value Proposition Canvas as two separate building blocks 2) Mixing several customer segments into one canvas 3) Creating your Customer Profile through the lens of your value proposition 4) Only focusing on functional jobs 5) Trying to address every customer pain and gain	http://blog.strategyzer.com/posts/2015/2/19/5-common-mistakes-to-avoid-when-using-the-value-proposition-canvas
How a Great Business Plan Will Maximize Your Risk of Failure	24/02/2015	Alexander Osterwalder	Post	Business Plan, Wastes	Doing a business plan during the early stages of idea development might maximize the risk of failure. Three reasons for that: 1) Getting to granular too early (wasting time) 2) Selling an idea &plan to leadership or investors (risk of getting locked-in) 3) Hiring based on an idea&plan (risk of premature scaling) . So the real problem isthat with business plan you get into the execution phase without finished properly the search phase	http://blog.strategyzer.com/posts/2015/2/24/how-a-great-business-plan-will-maximize-your-risk-of-failure
Search = Design, Test, Learn, and Iterate.	02/03/2015	Nabila Amarsy	Post	Design, Testing	The search phase consist in the activity of iterate between designing and testing business models and value propositions until is found something that works. Designing: Shape the idea into vp and bm prototypes that create value for the customer. Testing: Produce evidence that validates or invalidates the assumption of the prototypes.	http://blog.strategyzer.com/posts/2015/3/2/search-design-test-learn-iterate
Validate Your Ideas with the Test Card	05/03/2015	Alexander Osterwalder	Talk	Test Card Method	This paper provides an explanation othe testing method "Test Card"	http://blog.strategyzer.com/posts/2015/3/5/validate-your-ideas-with-the-test-card

Capture (Customer) Insights and Actions with the Learning Card	09/03/2015	Nabila Amarsy	Post & Talk	Learning Card Method	This paper provides an explanation othe testing method "Learning Card" used to capture insights from your experiments and turn them into actionable learnings.	http://blog.strategyzer.com/posts/2015/3/9/capture-customer-insights-and-actions-with-the-learning-card
From Idea to Business with Lean Startup & the Progress Board	13/03/2015	Alexander Osterwalder	Post	Progress Board	The progress board consists in 6 steps: 1) Prototyping 2) Extracting 3) Designing the Testing methods 4) Entering the learning loop 5) Capturing learnings 6) Measuring progress	http://blog.strategyzer.com/posts/2015/3/11/lean-startup-progress-board
Disney's Business Model: A Scalable Dream Factory	17/03/2015	Nabila Amarsy	Codified News	Disney, Canvas	This paper describes how the real key activity of Disney is creating a sustaining brand instead of just making movies.	http://blog.strategyzer.com/posts/2015/3/17/disneys-business-model-a-scalable-dream-factory
How To Create a Crystal Clear Business Model Canvas	19/03/2015	Benson Garner	Post	Canvas, Checklist	To use properly the Canvas is necessary to: 1) Use proper granularity 2) Make clear connections among building blocks 3) Use precise language 4) Add visual imagery 5) Apply color coding 6) Define present vs future state 7) Acknowledge assumptions	http://blog.strategyzer.com/posts/2015/3/19/how-to-design-a-crystal-clear-business-model-canvas
14 Ways to Apply the Business Model Canvas	23/03/2015	Benson Garner	Post	Canvas Applications	This paper provides 14 possible applications of the business model canvas: 1) Strategizing 2) Dashboard 3) Understanding competition 4) Portfolio of business models 5) Innovation 6) New idea template 7) Understanding customers 8) Alignment 9)Strategy diffusion & co-creation 10)Shared languaga across functions 11) Alignment between Value side and infrastructure 12) Investing 13)Mergers and acquisition 14) Exit strategies	http://blog.strategyzer.com/posts/2015/3/23/14-ways-to-apply-the-business-model-canvas
Co-Create, Pitch and Communicate with The Business Model Canvas and the Value Proposition Canvas	27/03/2015	Nabila Amarsy	Post	Canvas, Communication	Business Model and Value Proposition Canvases alllows to better: 1) Co-create with stakeholders 2) Articulate how you intend to create value 3) Communicate across the entire organization	http://blog.strategyzer.com/posts/2015/3/27/communicate-pitch-and-co-create-with-the-business-model-canvas-and-the-value-proposition-canvas

Map Your Business Model Network	30/03/2015	Benson Garner	Post	Business Model, Network, Partner Relationship	The success of a business is very often dependent on the external parties. The Canvas can help to understand the business model of: 1) Competitors 2) Customers 3) Channel Partners 4) Other key partners 5) Financiers	http://blog.strategyzer.com/posts/2015/3/30/mapping-your-business-model-network
Amazon's Value Proposition: Never Run Out Of Toilet Paper!	02/04/2015	Nabila Amarsy	Codified News	Amazon, Innovation	This paper describes how Amazon solve the customer pain of run out of important things at the wrong time	http://blog.strategyzer.com/posts/2015/4/2/amazons-value-proposition-never-run-out-of-toilet-paper
Why Some Business Models Are Better Than Others	07/04/2015	Nabila Amarsy	Post	Mechanics, Improvement	There are 7 mechanics that strengthen a business model: 1) Switching costs 2) Recurring revenues 3) Earning vs Spending 4) Game-changing cost structure 5) Get others to do the work 6) Scalability 7) Protection from competitors	http://blog.strategyzer.com/posts/2015/4/7/why-are-some-business-models-better-than-others
How Facebook's, IKEA's, WhatsApp's, and Uber's Business Models Get Others to Do the Work and Make Billions	09/04/2015	Alexander Osterwalder	Post	Innovation, Others do the work	Possibilites to get stakeholders to work for the company for free: 1) Customers as free laborers (Fb and Ikea) 2) Service providers and users as free laborers (creditcard companies) 3) Platforms thatget others to supply the infrastructure for free 4) Product platforms that enable third party services	http://blog.strategyzer.com/posts/2015/4/9/facebook-whatsapp-uber-business-model
LEGO's Great Business Model Turnaround Story	13/04/2015	Nabila Amarsy	Codified News	Lego, Innovation	Lego in 2000 changed completely its business model with: 1) Operations focus: streamlining activities and using the resources in the backstage of the Business Model 2) Customer focus: Creating more value with new value propositions in the frontstage of the Business Model	http://blog.strategyzer.com/posts/2015/4/13/legos-great-business-model-turnaround-story
Kick-Start Your Ability to Find Great Business Models and Value Propositions	16/04/2015	Nabila Amarsy	Post	Prototyping, Find alternatives	This paper provides some advice about how to kick.start the ability to create alternatives business model or value proposition	http://blog.strategyzer.com/posts/2015/4/16/find-great-business-models-and-value-propositions

How Nike, Skype and Bharti Airtel Challenged Traditional Business Models	20/04/2015	Nabila Amarsy	Codified News	Nike, Skype, Airtel, Innovation, Cost structure	This paper provides exemples about how innovation in cost structure creates a significative advantage	http://blog.strategyzer.com/posts/2015/4/20/how-nike-skype-and-bharti-airtels-challenge-traditional-business-models
5 Lean Startup Essentials to Reduce Risk and Uncertainty	23/04/2015	Alexander Osterwalder	Post	Lean Startup, Uncertainty	To have a Lean Startup is essentials to: 1) Uncertainty is at its maximum at the beginning, so don't waste time on a business plan. 2) Start testing the riskiest assumptions. 3) Start with cheap and fast experiments when uncertainty is high. Invest more with decreasing uncertainty. 4) Optimize your experiments (aka MVPs) for learning. 5) uilding your business only starts after you found the right value proposition(s) and business model.	http://blog.strategyzer.com/posts/2015/4/23/5-lean-startup-essentials-to-reduce-risk-and-uncertainty
3 Ways Color-Coding Can Improve Story-Telling In Your Business Model Canvas	28/04/2015	Nabila Amarsy	Post	Color coding	This paper shows how color coding can help to: 1) Make sense of business model 2) Contrast Current Business Model vs Future Business Model 3) Differentiate Between What's Been Tested & What Is Still Uncertain	http://blog.strategyzer.com/posts/2015/4/28/3-ways-color-coding-can-improve-story-telling-in-your-business-model-canvas
Webinar #2 - Getting Started With the Business Model Canvas	29/04/2015	Benson Garner	Webinar	Webinars, Business Model Canvas, Strategyzer Tools	This post provides a) 6 rules to use properly the business model canvas: 1) Avoid writing directly on a canvas 2) Don't get stuck with blah blah blah 3) Start with any building block 4) Never use bullet points 5) Avoid too much detail (Also use images) 6) Be precise for every building block b) 6 Best practices : 1) Use color coding 2) Separating "as is" and "to be" 3) Distinguish between facts and assumptions 4) Design business models with a story 5) Every building block is connected to another 6) Separate different ideas or stories into different canvases	http://blog.strategyzer.com/posts/2015/4/29/webinar-2-getting-started-with-the-business-model-canvas

Ways To Test Your Value Proposition and Business Model	30/04/2015	Nabila Amarsy	Post	Experiments, Customers, Testing	This paper gives some tips to testing properly a value proposition. For example often what customers say is (consciously or not) is different from what customers actually do, and how customers behave is different if you are here or you aren't	http://blog.strategyzer.com/posts/2015/4/30/ways-to-test-your-value-proposition-and-business-model
How 4 Media Companies Approach Their Business Models	04/05/2015	Kavi Guppta	Codified News	GigaOm, Buzzfeed, LinkedIn, Forbes, Revenue Stream	This paper shows how some media companies decided to innovate their business model through a new approach to advertising revenue or expanding current value propositions	http://blog.strategyzer.com/posts/2015/5/4/how-4-media-companies-approach-their-business-models-1
Don't Build When You Build-Measure-Learn	07/05/2015	Benson Garner	Post	MVP, Testing	MVP is the Minimum Viable Product. Is a representation of the value proposition designed to test the validity of assumption or hypothesis with the minimum effort. Some examples of MVPs are: Data sheet, Brochure, Storyboard, Landing page, Product box, Video, Learning prototype and Wizard of Oz.	http://blog.strategyzer.com/posts/2015/5/7/dont-build-when-you-build-measure-learn
8 Tips For Conducting Interviews That Deliver Relevant Customer Insights	11/05/2015	Benson Garner	Post	Tips, Interview, Capture Customers Behaviour	In this post are provided 8 tips to capture relevant customers insights during an interview: 1) Adopt a beginner's mindset 2) Listen more than you talk 3) Get facts not opinions 4) Ask “why” to get real motivations 5) Remember: the goal is to learn, not sell 6) Don’t mention solutions too early 7) Follow up 8) Always open doors at the end	http://blog.strategyzer.com/posts/2015/11/8-tips-for-conducting-interviews-that-deliver-relevant-customer-insights
Innovation Shouldn’t Be Career Suicide	15/05/2015	Kavi Guppta	Post	Innovation, Big enterprises	Generally, bis companies are good for execution and improvement, but they don't have the culture and processes to encourage innovation. A big company that wants to innovate should: 1) Acknowledge failure 2) Give prestige and power to experimentation 3) Makes failure manageable	http://blog.strategyzer.com/posts/2015/5/15/innovation-shouldnt-be-career-suicide

Good Ideas Are Bad For Innovators	19/05/2015	Kavi Guppta	Post	Innovation, Risk	Have a good idea at the beginning and start discussing and working on it, is not always positive because there is a positive correlation between talking on just one idea and risk. In order to avoid the good ideas trap is necessary to: 1) Figured out how to test the idea 2) Immediately started testing 3) Encouraged discovery of multiple ideas	http://blog.strategyzer.com/posts/2015/5/19/good-ideas-are-bad-for-innovators
Reinvent Your Company While It's Still Successful	21/05/2015	Nabila Amarsy	Codified News	Amazon Web, Business Model Innovation	This paper shows how Bezos constantly challenge Amazon to improve the existing business model and meanwhile inventing new growth opportunities	http://blog.strategyzer.com/posts/2015/5/21/amazon-web-services-reinvents-company-video-successful
Webinar #3 - How to Use the Value Proposition Canvas	22/05/2015	Benson Garner	Webinar	Webinars, Value Proposition Canvas, Strategyzer Tools	This post provides a framework to how to filling up a customer profile: 1) Select customer segment 2) Identify customer jobs 3) Identify customer pains 4) Identify customer gains 5) Prioritize jobs, pains and gains. To filling up the value map: 1) List products and services 2) Outilne pain relievers 3) Outline gain creators 4) Rank by order of importance. 5 avoidable mistakes: 1) Not looking at the value proposition canvas as two separate building blocks. 2) Mixing several customer segments into one canvas 3) Creating your customer profile through the lens of your value proposition 4) Only focusing on functional jobs 5) Trying to address every customer pain and gain. 5 best practises: 1) Assemble the right team for the project 2) Apply proper color coding to keep the story clear 3) Combine visuals and words for quicker understanding 4) Be sure you have some knowledge of your customers 5) Get out of the building to verify your knowledge of customers	http://blog.strategyzer.com/posts/2015/5/22/webinar-3-how-to-use-the-value-proposition-canva

7 Ways To Tank Your Business Model	26/05/2015	Kavi Guppta	Post	Potential Problems,	According to the writer there are 7 main problems that can tank a business model: 1) Build a product that customers love, but can't cover the costs. 2) Spends lots of money on acquiring customers in markets with low switching costs 3) Focus on customers with insanely long buying cycles 4) Spend heavily on acquiring market share in new markets 5) Target customers with channels that are blocked by a gatekeeper 6) Move slowly in a fast market 7) Ignore your business model environment in a highly regulated market	http://blog.strategyzer.com/posts/2015/5/26/7-ways-to-tank-your-business-model
What Do Customers Want?	28/05/2015	Nabila Amarsy	Post	Understanding Customers, Methods	This paper provides two methods to understand what kind of service or product the customer wants: 1) The product Box 2) The buy-a-feature exercise.	http://blog.strategyzer.com/posts/2015/5/28/what-do-customers-want
4 Simple Steps To Build Better Value Propositions With A/B Testing	09/06/2015	Nabila Amarsy	Post	A/B testing, MVP	The A/B test is just a near identical version of the MVP that only differ by one or two variables. A/B test consists in 4 steps: 1) Test your most critical hypotheses first 2) Pay attention to all the variables around your hypothesis 3) Develop an MVP with a prominent call-to-action 4) Record what you've observed against your initial hypothesis	http://blog.strategyzer.com/posts/2015/6/9/4-simple-steps-to-build-better-value-propositions-with-a/b-testing
StratChat With Tomasz Tunguz Of Redpoint Ventures	16/06/2015	Kavi Guppta	Talk	Redpoint Ventures	During this talk Tomasz Tunguz describes his unique approach to assessing a company by mapping out its business model.	http://blog.strategyzer.com/posts/2015/6/14/stratchat-with-tomasz-tunguz-of-redpoint-ventures
Onboard Executives With the Business Model Canvas	18/06/2015	Benson Garner	Post	Canvas' usage	This paper provides some examples of executives using the business model canvass	http://blog.strategyzer.com/posts/2015/6/18/onboard-executives-with-the-business-model-canvas
How Your Team Can Produce Evidence For Their Ideas	23/05/2015	Kavi Guppta	Post	Actions, Evidences	How to make tangible progress to validate or invalidate ideas without wasting time? 1) Don't brainstorm around ideas. Brainstorm around testable hypotheses. 2) Don't	http://blog.strategyzer.com/posts/2015/6/23/how-your-team-produces-evidence-for-their-ideas

					immediately draft a business plan. Run a portfolio of experiments.	
12 Mistakes To Avoid When Turning An Idea Into A Business	25/06/2015	Nabila Amarsy	Post	Mistakes	There are 12 main mistakes to avoid when turning an idea into a business: 1) You serach for the perfect idea 2) You mistake your hallucination for a vision 3) You fall in love with your first idea 4) You focus on product & technologies at the expense of a business model 5) You lack a clear business model story 6) You obsess over competitors, not customers 7) You first focus on "can it be vuilt" instead of "should it be build" 8) You buold what customers say they want 9) Your early experiments are expensive 10) You outsource the testing of your ideas 11) Bad timing 12) Poor execution	http://blog.strategyzer.com/posts/2015/6/25/12-mistakes-to-avoid-when-turning-an-idea-into-a-business
The C-Suite Needs A Chief Entrepreneur	29/06/2015	Alexander Osterwalder	Post	Chief Entrepreneur, Ambidexterity, Innovation	Today's corporate world needs more ambidextrous organization: companies that execute and innovate at the same time. A way to reach that is include the role of the Chief Entrepreneur (CE), taking care about innovation at the same level of the CEO. This paper describes also the characteristics and the jobs of this new role.	http://blog.strategyzer.com/posts/2015/6/29/the-c-suite-needs-a-chief-entrepreneur
Alex Osterwalder: “Companies can’t outsource the validation of their ideas”	30/06/2015	Kavi Guppta	Talk	Outsourcing, Testing	Outsourcing the validation of your ideas is extremely negative. The learning you get from testing your ideas in the field is fundamental to your venture’s long-term success. Instead the company has to test the ideas themselves, within the innovation space, headed by the CE.	http://blog.strategyzer.com/posts/2015/6/29/alex-osterwalder-companies-cant-outsource-the-validation-of-their-ideas

6 Roles That Can Position Your Company For The Future	02/07/2015	Alexander Osterwalder	Post	New roles, Organizational Chart	In order to managing the exploration on new value proposition and business models are necessary some new key roles within the organizational chart: 1) Chief Entreprenuer 2) Chief Portfolio Manager 3) Chief Venture Capitalist 4) Chief Risk Officer 5) Chief Internal Ambassador 6) Entrepreneurs	http://blog.strategyzer.com/posts/2015/7/2/6-roles-position-your-company-for-future
What Nokia Can Teach You About Resilience	06/07/2015	Nabila Amarsy	Codified News	Nokia, Innovation, Changing	This post describes how Nokia succeed and failed during his history and how Nokia innoveted his Business Model	http://blog.strategyzer.com/posts/2015/7/6/what-nokia-can-teach-you-about-resilience
How Business Model Fit Will Differentiate Tech That “Feels The Same”	07/07/2015	Kavi Guppta	Post	Differentiation, Fit, Reinvent	Big companies as Google or Apple have ehisting business model extremely profitable. But they know that this business model win't last forever, so they are trying to reinvent themselves while they are still successsful. But, the future growth engines will have very different fits. There are 3 kinds of fit: 1) Problem solution fit 2)Product market fit 3) usiness model fit	http://blog.strategyzer.com/posts/2015/7/7/how-business-model-fit-will-differentiate-tech-that-feels-the-same
Quick Thoughts From IESE Barcelona: How To Build Entrepreneurship Spirit	13/07/2015	Alexander Osterwalder	Talk	Tools, Ambidexterity, Reinvention	In this talk is summirized the meeting IESE. Osterwalder talked about: 1) Large companies need the right tools 2) A component of entrepreneurship is integral 3) There is no right moment for reinvention	http://blog.strategyzer.com/posts/2015/7/13/how-to-build-entrepreneurship-spirit-in-large-companies
How Card Sorting Can Help You Understand User Priorities	16/07/2015	Alexander Osterwalder	Post	Customers' priorities, Methods	This paper describes how an easy execise can help to understand the customers' priorities: 1) Define a list of priorities 2) Make your cards with images and crystal clear descriptions 3) Schedule your interviews and get your customers to prioritize 4) Crunch the data and analyze the patterns	http://blog.strategyzer.com/posts/2015/7/16/how-card-sorting-can-help-you-understand-user-priorities
How The Language Of Business Continues To Evolve	20/07/2015	Kavi Guppta	Post & Chart	Language, Chart	This paper shows, using also charts, how the usiness languages that have been influential over the past 20 years and analyze the growthof the Business Model Canvas concept.	http://blog.strategyzer.com/posts/2015/7/20/how-the-language-of-business-continues-to-evolve

How Readers Responded To My Org Chart For The Future	21/07/2015	Alexander Osterwalder	Q&A	Organizational chart, New Roles	In this post Alexander Osterwalder answers to questions, comments and critics from readers	http://blog.strategyzer.com/posts/2015/7/20/how-readers-responded-to-my-org-chart-for-the-future
The Pivot: 6 Situations When It's Time to Change Your Business Model and Value Proposition	23/07/2015	Nabila Amarsy	Post	Pivot, Iteration	During the searching phase two kinds of adjustments are possible: 1) Iteration (just riorient the business model) 2) Pivoting (make a substantial change to one components of the business model. When pivoting is needed?: 1) You don't generate enough traction from the customer you targeted 2) Your value proposition doesn't resonate with customers 3) Your acquisition & retention strategy doesn't generate the growth you hoped for 4) Customers are not willing to pay the price 5) You can't build the product and/or your costs are too high 6) External forces are threatening your business model	http://blog.strategyzer.com/posts/2015/7/23/the-pivot-6-situations-when-its-time-to-change-your-business-model-or-value-proposition
Switching Costs: 6 Ways To Lock Customers Into Your Ecosystem	27/07/2015	Nabila Amarsy	Post	Switching costs	One mechanics to use to design a superior business model are switching costs. There are 6 different traps tha company have used to lock customers with switching costs: 1) Base Product & Consumable trap (Razor&Blade) 2) Data trap 3) Learning Curve Trap 4) Industry standards trap 5) Servitization Trap 6) Exit trap	http://blog.strategyzer.com/posts/2015/7/27/switching-costs-6-strategies-to-lock-customers-in-your-ecosystem
3 Reasons Why A Turnaround Plan Won't Save McDonald's	30/07/2015	Kavi Guppta	Post	Turnaround, McDonald	Today McDonald is facing cash management problems. The CEO has announced a Turnaround plan, but probably won't be enough, why? 1) A turnaround plan usually focuses on improving the existing business model, not inventing the future 2) The value proposition doesn't connect with customers anymore 3) Future growth engines need their own space to develop	http://blog.strategyzer.com/posts/2015/7/30/3-reasons-why-a-turnaround-plan-wont-save-mcdonalds

Nintendo: It's Not Game Over	03/08/2015	Nabila Amarsy	Codified News	Nintendo, Improve and Invent	This post describes how Nintendo is trying to improve the existent Business model and meanwhile try to find new business models for the future, as Nintendo already did successfully in the past	http://blog.strategyzer.com/posts/2015/8/3/nintendo-its-not-game-over
Why Intrapreneurs Are Not Rewarded Like Sales People and Why This Needs To Change	06/08/2015	Alexander Osterwalder	Post	Intrapreneur, Reward	Intrapreneurs ave the responsability for building the future of the company, but oftentimes are not properly rewarder for their efforts. How to reward them properly, in order to retain top talents? An interesting way could be create an internal stock market where participants own and earn a stake in their efforts, as happened to Henry Chesbrough.	http://blog.strategyzer.com/posts/2015/8/6/why-intrapreneurs-are-not-rewarded-like-sales-people
What We Can Learn From Microsoft's Strategic Challenges	10/08/2015	Kavi Guppta	Post	Microsoft, Innovation, Challenges	MIcrosoft for years had the predominance in the OS system for PC, but the future is mobile and Microsoft's current business model and value proposition no longer fits with its business environment. There are three big challenges added by some journalist: 1) Improve the old business model, and keep it alive 2) Create a culture that can build the company's future 3) Experiment with new business models for the future	http://blog.strategyzer.com/posts/2015/8/10/3-challenges-facing-microsoft-what-we-can-learn-from-them

13 Traps That Can Render Your Market Research Irrelevant	13/08/2015	Nabila Amarsy	Post	Mistake, Testing	During the testing phase (where you try to validate or invalidate the assumptions) there are 13 possible traps that you have to avoid: 1) You test the solution before verifying your customers' jobs, pains, and gains 2) Your testing environment differs from real life situations 3) You value opinions over evidence 4) Your Call-To-Action (CTA) is weak and fails to reveal a real interest or preference 5) You chose the wrong testing technique 6) You chose the wrong 'success metrics' to validate what is needed for your business model to work 7) You didn't test business killers first and instead focused on hypotheses with the least impact 8) You forgot to invalidate your hypothesis and remove your own bias 9) You test too many things at once, making it hard to understand the outcomes 10) You don't adapt the sample size to your testing context 11) You give too much or too little time to your test 12) Your commitment to the original idea prevents you from discovering superior alternatives 13) You've poorly executed your tests and the data is flawed	http://blog.strategyzer.com/posts/2015/8/13/13-testing-traps-that-will-ruin-your-tests
Chief Internal Ambassador: The Bridge Builder For Your Company's Future	17/08/2015	Alexander Osterwalder	Post	Role, CIA, Organizational Chart	Chief Internal Ambassador is one of the new roles that Osterwalder imagine for the future companies.This post describes the CIA's characteristics and job.	http://blog.strategyzer.com/posts/2015/8/17/chief-internal-ambassador-bridge-builder-for-future-company
Why Evidence Trumps Opinion	20/08/2015	Alexander Osterwalder	Post	Evidences, Judging	This post shows how the executives should act: they should provide their experience to avoid traps but they shouldn't be judging. For the future company is necessary to encourage culture where the purpose of feedback is to help improve the business model.	http://blog.strategyzer.com/posts/2015/8/19/why-evidence-trumps-opinion

At SAP, Design Thinking & The Business Model Canvas Go Hand-In-Hand	24/08/2015	Kavi Guppta	Talk	Design thinking, SAP	In this talk Michel Sérié shows how the concept of designi thinking and the business model canvas work hand-in-hand	http://blog.strategyzer.com/posts/2015/8/24/at-sap-design-thinking-the-business-model-canvas-go-hand-in-hand
StratChat Q&A: Alex Osterwalder Answers Audience Questions On Value Proposition Design	31/08/2015	Alexander Osterwalder	Q&A	Canvas, Value Proposition Design	In this post Alexander Osterwalder answers to questions, comments and critics from readers	http://blog.strategyzer.com/posts/2015/8/31/stratchat-qa-alex-osterwalder-answers-your-value-proposition-design-questions
At Zoo Labs, The Business Model Canvas Is Helping To Redefine The Music Industry	07/09/2015	Kavi Guppta	Post	Canvas, Zoo Labs, Teaching	In this post Kavi Guppta explains how the business model canvas is explained to Zoo Labs residents and their reactions.	http://blog.strategyzer.com/posts/2015/9/6/at-zoo-labs-the-business-model-canvas-is-helping-to-redefine-the-music-industry
The Toolbox Every Company Needs To Perform Business Strategy & Innovation	11/09/2015	Nabila Amarsy	Post	Tools, Innovation	Business tools help strategists address today's complex challenges in two ways: 1) Structured Approach: They help organize information and prioritize the work 2) Shared Language. The tools provided by strategyzer are: 1) Environment map 2) Business Model Canvas 3) Value Proposition Canvas 4) Testing Card 5) Learning Card 6) Progress Board	http://blog.strategyzer.com/posts/2015/9/8/an-emerging-toolbox-for-business-strategy-innovation
9 Ways To Make The Business Model Canvas Part Of Your DNA	14/09/2015	Nabila Amarsy	Post	Canvas, Integration	This post provides 9 things some organization did to successfully integrated the Business Model Canvas: 1) Find champion users 2) Get C-level Sponsorship 3) Make it official 4) Train people 5) Create a risk-free spaces 6) Showcase success 7) Create a sense of urgency 8) Make it a priority 9) start simple	http://blog.strategyzer.com/posts/2015/9/14/9-ways-to-make-the-business-model-canvas-part-of-your-dna

Should We Do It? Vs. Can We Do It?	17/09/2015	Alexander Osterwalder	Post	Lean Startup, R&D, Uncertainty	Often, large companies with huge R&D budget is mainly focused on “can we do it” product and technology questions. 1) Can we do it: Can we build the technology, product or service? Will it be difficult, costly, or near impossible to produce the solution we have envisioned? 2) Should we di it: Is there customer acceptance for the problem we are trying to solve? Can we build a value proposition and business model that’s scalable? Can we prove it?	http://blog.strategyzer.com/posts/2015/9/14/should-we-do-it-can-we-do-it
Mythbusting: Why Big Company Innovation Doesn't Have To Be Expensive	21/09/2015	Strategyzer	Talk	Innovation, Culture	In this Talk Scott Anthony answers to some questions about innovation and how it coulde be cheap also in big companies.	http://blog.strategyzer.com/posts/2015/9/14/mythbusting-why-big-company-innovation-doesnt-have-to-be-expensive
How To Prototype Radically Different Business Models	24/09/2015	Nabila Amarsy	Post	Constrained Prototyping, Innovation	Prototyping helps to explore possible alternatives quickly and cheaply to assess their feasibility, desirability and viability. Specifically, a useful technique is Constrained Prototyping, that hepls to invent new alternative business models.	http://blog.strategyzer.com/posts/2015/9/24/how-to-prototype-radically-different-business-models
"Great Strategy Is Really Great Portfolio Management"	28/09/2015	Kavi Guppta	Talk	Innovation, Culture	In this Talk Mark Johnson answers about performing business model innovation in organizations.	http://blog.strategyzer.com/posts/2015/9/15/great-strategy-is-really-great-portfolio-management
How Tesla Plans To Lead The Electric Car Market	01/10/2015	Nabila Amarsy	Codified News	Tesla, Innovation, Open Patents	This post illustrates how Tesla plans to lead this market and convince the rest of the world to switch to electric cars	http://blog.strategyzer.com/posts/2015/10/1/how-tesla-plans-to-lead-the-electric-car-market
Why Corporate Leadership Needs To Get Comfortable With Frequent Business Model Innovation	05/10/2015	Kavi Guppta	Talk	Corporate leadership, Business Model Innovation	In this Talk Saul Kaplan details key steps for big company leadership to enact and embrace frequent business model innovation	http://blog.strategyzer.com/posts/2015/10/2/why-corporate-leadership-needs-to-get-comfortable-with-frequent-business-model-innovation

How Big Companies Can Make The Intrapreneur Sexy Again	08/10/2015	Alexander Osterwalder	Post	Intrapreneur, Reward	Organizations are streamlined to execute an existing business model, anything outside of that risks being shot down by "organizational antibodies".Moreover, R&D is generally focused on technology or product innovation that helps improve the existing business model; it rarely prepares the company for future business model environments. Intrapreneur are often sidelined by the organizational antibodies who focus on the execution of the existing business model and are made irrelevant and this is terrible for retaining top talent that can invent the future. Without them, companies will be stuck with a staff that is excellent at executing a known business model, but are incapable of creating the future.	http://blog.strategyzer.com/posts/2015/10/8/how-big-companies-can-make-the-intrapreneur-sexy-again
The Culture Map: A Systematic & Intentional Tool For Designing Great Company Culture	13/10/2015	Alexander Osterwalder	Post	Corporate Culture, Culture Map	This Post Introduces the tool Culture Map,that can help to develop a framework to build a corporate culture. How does it work? 1) Starting by mapping behaviours 2) Map the outcomes 3) Mapping the enablers and blockers	http://blog.strategyzer.com/posts/2015/10/13/the-culture-map-a-systematic-intentional-tool-for-designing-great-company-culture
How To Scan Your Business Model Environment For Disruptive Threats And Opportunities	15/10/2015	Nabila Amarsy	Post	Business Model Environment	The Business Model Environment helps people map their environment's forces in a structured and tangible way. It s organised into four areas: 1) Market Forces, 2) Key Trends, 3) Industry Forces, 4) Macro-Economic Trends. Moreover, use this map as a starting point to discuss the evolution of your environment and opportunities that will emerge from it.	http://blog.strategyzer.com/posts/2015/10/14/how-to-scan-through-your-environments-disruptive-threats-and-opportunities
StratChat Q&A: Alex Osterwalder Answers More Questions On Value Proposition Design	19/10/2015	Kavi Guppta	Talk	Entrepreneur, Jobs Pain and Gain	In this talk Osterwalder provides valuable and concrete tips on how to build very specific value propositions around each customers' jobs, pains, and gains.	http://blog.strategyzer.com/posts/2015/10/16/stratchat-qa-alex-osterwalder-answers-more-questions-on-value-proposition-design

How The Right Tools Can Help Shape The World	26/10/2015	Kavi Guppta	Talk	Culture, Employee's Satisfaction, Tools	This talk focused on how the tools we create have the power to shape our businesses, our culture, our institutions, and the world	http://blog.strategyzer.com/posts/2015/10/25/how-the-right-tools-can-help-shape-the-world
How Sales Teams Can Create Focused Value For Prospects With The Value Proposition Canvas	29/10/2015	Kavi Guppta	Post	Sales Team, Value Map, Customer Profile, Focused Value	Sales team can create focused value for prospects with the value proposition canvas, how? 1) Plotting prospect's customer profile before, during, or after a meeting 2) Sketch out a Value Map that highlights how you're creating value for your customer	http://blog.strategyzer.com/posts/2015/10/28/how-sales-teams-can-create-focused-value-for-prospects-with-the-value-proposition-canvas
8 Concrete Tips On How To Intentionally Design Great Corporate Culture	02/11/2015	Kavi Guppta	Talk	Culture Map, Organizational Culture, Strategyzer Tools, StratChat	In this talk, Dave Gray discuss in detail the importance of great corporate culture and how it can be designed	http://blog.strategyzer.com/posts/2015/11/2/8-concrete-tips-on-how-to-intentionally-design-great-corporate-culture
The Vocabulary Of Strategy, Innovation, & Entrepreneurship	05/11/2015	Kavi Guppta	Post	Listicle, Business Model Canvas, Innovation & Strategy	In this post are grouped the key phrases that will help to better articulate the approach to business strategy and innovation within a company	http://blog.strategyzer.com/posts/2015/11/5/the-vocabulary-of-strategy-innovation-entrepreneurship
Discussion: Top 10 Mistakes Every Business Makes	16/11/2015	Kavi Guppta	Talk	Innovation & Strategy, Strategyzer POV, StratChat	In this Talk Alan Smith digs into the 10 most common mistakes every venture can make: 1) Building something nobody wants 2) Hiring Poorly 3) Lack of focus 4) Fail to execute Sales & Marketing 5) Not having the right Co-funders 6) Chasing investors, not the customers 7) Not making sure you have enough money 8) Spending too much money 9) Failing to ask for help 10) Ignoring social media	http://blog.strategyzer.com/posts/2015/11/12/discussion-top-10-mistakes-every-business-makes
M&As Aren't Enough: Why Pharmaceutical Companies Need New Business Models	19/11/2015	Nabila Amarsy	Codified News	Business Model Canvas, Video Case	In this Talk, Nabila Amarsy illustrates the motives behind these M&As, why they're not enough to drive long-term growth, and how pharma companies can address the key challenges of their industry.	http://blog.strategyzer.com/posts/2015/11/19/mas-arent-enough-why-pharmaceutical-companies-need-new-business-models

Replay Webinar #4: Ways To Present The Business Model Canvas	23/11/2015	Kavi Guppta	Talk	Business Model Canvas, Webinars, Strategyzer Tools	In this Talk are presented a series of best practices for communicating potential and existing business ideas through the Canvas	http://blog.strategyzer.com/posts/2015/11/23/replay-webinar-4-ways-to-present-the-business-model-canvas
Food For Thought: Quotes & Links On Strategy, Innovation, & Entrepreneurship	26/11/2015	Kavi Guppta	Post	Listicle, Testing, Customer Development	In this post, are collected a handful of powerful quotes on business strategy, innovation, and entrepreneurship	http://blog.strategyzer.com/posts/2015/11/23/food-for-thought-on-business-strategy-innovation-entrepreneurship
A Quick Guide To Asking Good Customer Questions	30/11/2015	Kavi Guppta	Post	Listicle, Testing, Customer Development	In this post https://goo.gl/B6x9jB there are 8 ground rules we provide to help you and your team conduct solid customer interviews. Now, this post shows some tips for designing good customer questions: 1) Frame the conversation around your customers' jobs, pains, and gains 2) Use the Value Proposition Canvas as the basis for designing interview questions	http://blog.strategyzer.com/posts/2015/11/26/a-quick-guide-for-asking-good-customer-questions
Webinar Q&A: Answers To Your Questions On Presenting With The Business Model Canvas	03/12/2015	Kavi Guppta	Q&A	StratChat, Webinars, Business Model Canvas	During the Q&A session, Osterwalder answers questions from the audience on ways to present the Business Model Canvas.	http://blog.strategyzer.com/posts/2015/12/1/webinar-qa-answers-to-your-questions-on-presenting-with-the-business-model-canvas
Discussion: The Future Of Strategy & Innovation Is Much More Dynamic	07/12/2015	Kavi Guppta	Talk	Innovation & Strategy, Organizational Culture	During this talk Rita McGrath discuss how strategy is becoming a much more dynamic undertaking	http://blog.strategyzer.com/posts/2015/12/4/discussion-the-future-of-strategy-innovation-is-much-more-dynamic
How Large Companies Can Create A Lean Startup Culture For Strategy & Innovation	10/12/2015	Kavi Guppta	Talk	Innovation & Strategy, Organizational Culture	In this talk Osterwalder explains how large companies can invent a Lean Startup culture that embraces quick and cheap innovation alongside a company's existing execution culture	http://blog.strategyzer.com/posts/2015/12/7/how-large-companies-can-create-a-lean-startup-culture-for-strategy-innovation

10 Essential Links For Testing Your Value Proposition & Business Models	17/12/2015	Kavi Guppta	Post	Listicle, Business Modelling, Value Proposition Design, Testing	This post provides 10 links to help you design, implement, and manage your portfolio of experiments: 1) Search = Design, Test, Learn & Iterate 2) Roadmap To Test Your Value Proposition 3) How Card Sorting Can Help You Understand User Priorities 4) Don't Build When You 'Build-Measure-Learn' 5) 13 Traps That Can Render Your Market Research Irrelevant 6) Validate Your Ideas With The Test Card 7) What Do Customers Want? 8) 4 Simple Steps To Build Better Value Propositions With A/B Testing 9) Capture Customer Insights & Actions With The Learning Card 10) From Idea To Business With Lean Startup & The Progress Board	http://blog.strategyzer.com/posts/2015/12/17/10-essential-links-for-testing-your-value-proposition-business-models
Discussion: A Reflection On Strategy & Innovation In 2015	21/12/2015	Kavi Guppta	Talk	Innovation & Strategy, Strategyzer, StratChat	In this talk Osterwalder reflects on how strategy and innovation impacted large companies in the past year	http://blog.strategyzer.com/posts/2015/12/20/discussion-a-reflection-on-strategy-innovation-in-2015
Why Your Company Might Be About To Have A Kodak Moment	07/01/2016	Alexander Osterwalder & Yves Pigneur	Post	Organizational Culture	Good innovation doesn't necessarily have to be tied to a product or technology if the value proposition creates value for your customers, and your business model creates value for the company. Good business model innovation starts with your culture	http://blog.strategyzer.com/posts/2016/1/5/why-your-company-might-be-about-to-have-a-kodak-moment
Best Practices: How To Use The Culture Map	11/01/2016	Kavi Guppta	Post	Culture Map, Organizational Culture	In this post, are collected 7 best practices for using the Culture Map in collaborative sessions: 1) Imagine your corporate culture as a garden 2) Work in slices 3) Tell stories and be specific 4) Start by mapping out behaviors 5) Discuss how leadership, culture & processes, and organizational design impact your culture 6) Place the Culture Map in a visible space after the session 7) Make sure it's a living document	http://blog.strategyzer.com/posts/2016/1/11/best-practices-how-to-use-the-culture-map

8 Reminders To Motivate Your Search For Value Propositions & Business Models	18/01/2016	Kavi Guppta	Post	Business Modelling, Innovation & Strategy, Listicle	This post provides 8 reminders to keep a team focused and motivated: 1) Do nothing and your company will become disposable 2) Good business model innovation starts with your culture 3) Manage today's business model while searching for tomorrow's success 4) Reinvent constantly. Don't wait for a crisis to surprise the organization 5) Innovation isn't magic, it's a process 6) Get leadership and teams to speak the same language 7) Your company's existing assets might be the ticket to its next success 8) Always, always, always champion evidence	http://blog.strategyzer.com/posts/2016/1/18/8-reminders-to-motivate-your-search-for-value-propositions-business-models
How Design Thinking Will Reshape Business Model Innovation	25/01/2016	Alexander Osterwalder & Yves Pigneur	Post	Business Modelling, Innovation & Strategy	In this post is explained how a technique can transform the way leaders can solve business problems in today's rapid and dynamic business environment: 1) Feel comfortable in a liquid state 2) Embrace a beginner's mindset 3) Adopt the right tools 4) Start with low fidelity prototypes 5) Use Computer Aided Design (CAD) to push boundaries	http://blog.strategyzer.com/posts/2016/1/22/how-design-thinking-will-reshape-business-model-innovation
The Difference Between Business Planning & Experimentation	01/02/2016	Kavi Guppta	Post	Innovation & Strategy, Listicle	In this post, are explained the some differences between the habits of experimentation and business planning	http://blog.strategyzer.com/posts/2016/2/1/the-difference-between-business-planning-experimenation
Discussion: Concrete Tips For Running An Effective Workshop	08/02/2016	Kavi Guppta	Talk	StratChat, Innovation & Strategy, Masterclass	In this talk Alison Coward shares insight after insight on designing, running, and managing collaborative workshop sessions	http://blog.strategyzer.com/posts/2016/2/5/discussion-concrete-tips-for-running-an-effective-workshop
Strategyzer & Medtronic: Redefining Customer-Centric Innovation	15/02/2016	Kavi Guppta	Case Studies	Medtronic, Customer-Centric Innovation	In this post is explained how Strategyzer's tools helped Medtonic to transform its habits to focus squarely on the customer	http://blog.strategyzer.com/posts/2016/2/12/strategyzer-medtronic-redefining-customer-centric-innovation

Webinar Replay: How To Validate Business Ideas	22/02/2016	Kavi Guppta	Talk	Webinars, Innovation & Strategy	In this talk Alexander Osterwalder explains a process for how companies can go from a business idea to validated business case in 8-12 weeks	http://blog.strategyzer.com/posts/2016/2/16/webinar-replay-how-to-validate-business-ideas
The Mission Model Canvas: An Adapted Business Model Canvas For Mission-Driven Organizations	25/02/2016	Alexander Osterwalder	Post	Mission Model Canvas, Lean Startup, Business Modelling	This post shows the flexibility of the Business Model Canvas adapting it when the primary metrics of success for an organization is not revenue. With some little changes is possible to obtain the Mission Model Canvas, when the primary goal is not to earn money, but to fulfill a mission.	http://blog.strategyzer.com/posts/2016/2/24/the-mission-model-canvas-an-adapted-business-model-canvas-for-mission-driven-organizations
Why R&D Is Not Business Model Innovation	29/02/2016	Kavi Guppta	Post	R&D, Kodak, Innovation & Strategy	This post explains why traditional R&D is not synonym of success. In fact, traditional R&D is limited in its ability to understand if new business ideas will result in value to the customer, and value to the company	http://blog.strategyzer.com/posts/2016/2/29/why-rd-is-not-business-model-innovation
Webinar Q&A: Answers On How To Validate Business Ideas	07/03/2016	Kavi Guppta	Q&A	Webinars, StratChat, Ideas	During this Q&A session, Alexander Osterwalder responds to audience questions posed during the webinar session on "How to validate business ideas".	http://blog.strategyzer.com/posts/2016/3/2/webinar-qa-answers-on-how-to-validate-business-ideas
4 Important Facts About Business Model Innovation For 2016 & Beyond	14/03/2016	Kavi Guppta	Post	Business Model Generation	In this post are presented 4 facts from Renee Hopkins to remind leaders and teams about the importance of business model innovation: 1) Business model innovation is strategy development 2) It's too risky for established businesses to hide from potential disruptive competition 3) Business models make technologies transformative, not the other way around 4) Business models must be designed, prototyped and tested in the real world, using metrics that make sense for innovation	http://blog.strategyzer.com/posts/2016/3/9/4-important-facts-about-business-model-innovation
The Difference Between Customer Profiles & Buyer Personas	21/03/2016	Kavi Guppta	Post	Customer Understanding, Tools	There are two possibles tools for getting to know your customers: 1) Customer Profile 2) Buyer Persona. This post explains why Customer Profile can be a much more	http://blog.strategyzer.com/posts/2016/3/17/the-difference-between-customer

					actionable evidence gathering tool than developing a buyer persona.	
How Rigorous Customer Development Fuels Ikea's Global Expansion	28/03/2016	Kavi Guppta	Case Studies	Company Assessment, Customer Development, Testing	In this post is explained how Ikea's successful global expansion is centered around a rigorous focus on customer understanding and customer development exercises. Some guidelines from Ikea: 1) Ikea allocates a lot of time to validating market risk 2) Ikea collects evidence to build regional customer profiles 3) Ikea doesn't just listen to what their customers say 4) At Ikea, everyone steps into the customer's shoes 5) Ikea makes plenty of mistakes, but works to correct them	http://blog.strategyzer.com/posts/2016/3/23/how-rigorous-customer-development-fuels-ikeas-global-expansion
5 Essential Strategyzer Webinars To Enhance Your Business Model & Value Proposition Design	04/04/2016	Kavi Guppta	Post	Webinars, StratChat	In this post are grouped and linked the webseminars about Business model and Value proposition design	http://blog.strategyzer.com/posts/2016/4/4/strategyzer-webinars-essential-links-to-our-free-live-sessions
Strategyzer & Mastercard: How A Global Workforce Speaks A Shared Language	11/04/2016	Kavi Guppta	Case Studies	Case Studies, Shared Language	This post shows how Strategyzer and MasterCard worked together to scale a shared language for business modelling to over 1,000 people inside the organization.The result is a workforce that can discuss and create value for the company.	http://blog.strategyzer.com/posts/2016/4/11/strategyzer-mastercard-training-a-global-workforce-to-innovate-business-models
How To Convince Leaders To Avoid Business Plans When Validating New Ideas	18/04/2016	Kavi Guppta	Post	Testing, Business Plan, Canvas	In this post is shared a killer argument that will shake the bad company habit of writing detailed business plans, and help to explain the value of testing and validating underlying assumptions to your leadership. What to do instead of business plan? 1) Trust experiments over experts 2) Explain that innovation isn't expensive	http://blog.strategyzer.com/posts/2016/4/18/how-to-convince-leaders-to-avoid-business-plans-when-validating-new-ideas

How To Define Progress & Manage Failure When Validating New Business Ideas	25/04/2016	Kavi Guppta	Post	Innovation & Strategy, Testing	In this post is explained how to map out the performance steps that indicate progress, whether to validate or invalidate assumptions, when market testing. There are two types ok KPIs that have to be measured: 1) Define and capture your activities 2) Define and capture your progress	http://blog.strategyzer.com/posts/2016/4/25/how-to-define-progress-manage-failure-when-validating-new-business-ideas
Webinar Replay: How MasterCard Scaled Business Model Design Training To 1000+ People	02/05/2016	Kavi Guppta	Talk	Case Studies, Tools, Webinars	During this talk Alexander Osterwalder discusses the challenges, achievements, and learnings of training a global workforce on Business Model & Value Proposition design	http://blog.strategyzer.com/posts/2016/5/2/webinar-replay-how-mastercard-scaled-business-model-design-training-to-1000-people
Access 30+ Free Strategyzer Tools In Our Resource Library	05/05/2016	Strategyzer	List	Strategyzer Tools	This post provide a list of all the tools used in blogposts.	http://blog.strategyzer.com/posts/2016/4/26/access-30-free-strategyzer-tools-in-our-resource-library
3 Ways The Business Model & Value Proposition Canvas Can Improve Your Strategy Workshop	09/05/2016	Kavi Guppta	Post	Strategyzer Tools, Workshop	This post shows why the Business Model & Value Proposition Canvases can be powerful tools for productive conversations in a business and strategy workshop. There are 3 main reasons: 1) Tools create a guided framework for conversations 2) Tools encourage participants to collaborate in different environments 3) Tools encourage participants to discuss something tangible	http://blog.strategyzer.com/posts/2016/5/4/3-ways-the-business-model-value-proposition-canvas-can-improve-your-strategy-workshop
The SWAT Team That Can Validate New Business Ideas Inside Your Organization	16/05/2016	Kavi Guppta	Post	Employees, SWAT	This post shows how the agile and specialized SWAT Team that can take an idea to an opportunity to potential working solution. Which kind of people should be included in this team? 1) A senior leader to carry the vision and guide the team 2) Board members and executive backing 3) Hands-on doers: people who do the important ground work.	http://blog.strategyzer.com/posts/2016/5/5/the-swat-team-that-can-validate-new-business-ideas-inside-your-organization

CXOTALK: Alex Osterwalder Chats About Culture Change & Digital Transformation	23/05/2016	Strategyzer	Talk	Culture Map, Business Innovation	During this talk Alexander Osterwalder and Dave Gray discussed about why organizational culture is important to the development of new business models & value propositions	http://blog.strategyzer.com/posts/2016/5/11/cxotalk-alex-osterwalder-chats-about-culture-change-digital-transformation
Why Senior Leaders Have To Make Time For Customers	30/05/2016	Kavi Guppta	Post	Customer Development, Leader's Role	This post explains why it's incredibly important for leadership to make time in their schedules for customer development when exploring new business ideas.	http://blog.strategyzer.com/posts/2016/5/26/why-senior-leaders-have-to-make-time-for-customers
Webinar Replay: Ask Us Anything About Value Proposition Design	02/06/2016	Strategyzer	Talk	Webinars, Value Proposition Canvas	During this talk Alexander Osterwalder and Gregory Bernarda answered audience questions on challenge areas with the tools, concepts, and methodologies from the book	http://blog.strategyzer.com/posts/2016/6/2/webinar-replay-ask-us-anything-about-value-proposition-design
How To Get Leadership Buy-In For Business Model Design Training	06/06/2016	Kavi Guppta	Post	Tools, Leadership Buy-in, Communication	In this post is explained how to get leadership on board with training a workforce on business model innovation. Some tips: 1) Use the toools to present progress for existing projects 2) Organize a leadership learning event 3) Get leadership attention with some disaster scenarios 4) Showcase success stories of innovative companies	http://blog.strategyzer.com/posts/2016/6/6/how-to-get-leadership-buy-in-for-business-model-design-training
3 Activities To Encourage Dynamic Strategic Thinking	13/06/2016	Kavi Guppta	Post	Business Model Canvas, Innovation & Strategy	This post provides three activities that leaders and teams can perform to become dynamic strategic thinkers: 1) Start with looking at what you have got 2) Discuss where you want to be 3) Then break it all down into day-to-day activities	http://blog.strategyzer.com/posts/2016/6/13/3-activities-to-encourage-dynamic-strategic-thinking
Why Companies Fail & How To Prevent It	20/06/2016	Alexander Osterwalder	Post	Startup, Business Model Canvas	This post analyze the reasons for startup's failure and what emerges is that the business model was not viable. So, is provided a simple framework to avoid the failure by breaking down the business model canvas in four areas: 1) Feasibility 2) Desirability 3) Viability 4) Adaptability	http://blog.strategyzer.com/posts/2016/6/20/why-companies-fail-how-to-prevent-it

How Jeff Bezos Maintains Amazon's Killer Company Culture	27/06/2016	Kavi Guppta	Case Studies	Company Assessment, Entrepreneurship, Enterprise, Innovation & Strategy, Organizational Culture	This Post provides some excerpts from Jeff Bezos's letter to shareholders and unearth concrete examples of how Bezos builds a company culture that constantly pioneers in new spaces. Furthermore, is provided an analysis of Amazon's culture using the Strategzer's Culture Map	http://blog.strategyzer.com/posts/2016/6/23/how-jeff-bezos-maintains-amazons-killer-company-culture
Discussion: Business Plans Lead You To Failure More Than Anything Else	04/07/2016	Kavi Guppta	Talk	Business Model Generation, Business Model Canvas, Innovation & Strategy, StratChat	During this talk Alexander Osterwalder explain why business plan are the wrong tool when validating new business model ideas	http://blog.strategyzer.com/posts/2016/7/4/discussion-business-plans-lead-you-to-failure-more-than-anything-else
Webinar Replay: Business Model Design For Mission Driven Organizations	07/07/2016	Strategyzer	Talk	Webinars, Mission Model Canvas	During this talk Alexander Osterwalder and Steve Blank discuss about the adaptation of the business model canvas for organizations that value impact over revenues	http://blog.strategyzer.com/posts/2016/7/1/webinar-replay-business-model-design-for-mission-driven-organizations
Don't Let Your Company Culture Just Happen	11/07/2016	Alexander Osterwalder & Yves Pigneur & Kavi Guppta	Post	Culture Map, Innovation & Strategy, Organizational Culture	In this post is explained how to intentionally design culture that engages individuals, teams and leadership to contribute their best work.	http://blog.strategyzer.com/posts/2016/7/10/dont-let-your-company-culture-just-happen
5 Characteristics Of A Great Strategy Workshop Facilitator	18/07/2016	Kavi Guppta	Post	Innovation & Strategy, Strategyzer Tools	This post provides five tips that can push employees towards productive results form the workshop session: 1) Remember it's not about you 2) Ask a lot of questions 3) Be a brilliant listener 4) Help to bring ideas together 5) Be external to the process	http://blog.strategyzer.com/posts/2016/7/18/5-characteristics-of-a-great-strategy-workshop-facilitator
How To Capture Customer Jobs, Pains, & Gains	25/07/2016	Kavi Guppta	Post	Customer Developmentm, Tools, Testing	This post explains how to eliminate the subjective or biased aspects of the value proposition design through customer interviews and experiments: 1) Avoid	http://blog.strategyzer.com/posts/2016/7/20/how-to-capture-customer-jobs-pains-gains-that-arent-subjective

That Aren't Subjective					selling your value proposition 2) Avoid asking for opinions 3) Gather quantitative answers	
At BioCity, Customer Obsession Fuels The Next Generation Of Healthcare	01/08/2016	Kavi Guppta	Case Studies	Business Model Canvas, Case Studies, Innovation & Strategy, Value Proposition Canvas, Strategyzer Tools	In this post Toby Reid explains how in BioCity are using Strategyzer's Tools to create next generation life science and to validate customer priorities in his organization.	http://blog.strategyzer.com/posts/2016/8/1/at-biocity-customer-obsession-fuels-the-next-generation-of-healthcare
14 Essential Links For Working With The Business Model Canvas	08/08/2016	Kavi Guppta	List	Listicle, Strategyzer Tools	This post provide a list of all the resources and post about the business model canvas.	http://blog.strategyzer.com/posts/2016/8/8/14-essential-links-for-working-with-the-business-model-canvas
Webinar Replay: How To Get Senior Leaders Out Of The Building To Test Ideas	11/08/2016	Strategyzer	Talk	Customer Development, Testing, Webinars	During this talk Alexander Osterwalder gives concrete examples and tips to help leaders to get out of the building and testing ideas.	http://blog.strategyzer.com/posts/2016/8/11/webinar-replay-how-to-get-senior-leaders-out-of-the-building-to-test-ideas
What Nestlé Would Have To Do To Monetize Its Healthcare Bets	15/08/2016	Alexander Osterwalder	Case Studies	Nestlé, Company Assessment, Enterprise	In this post Alexander Osterwalder explains why he thinks Nestlé is not ready to be an Ambidextrous Comapny(can't improve and invent at the same time). Osterwalder proposes also the Self-Assessment Framework, to measure the organization against three key areas: 1) Leadership 2) Culture & Processes 3) Organizational Design	http://blog.strategyzer.com/posts/2016/8/15/what-nestle-would-have-to-do-to-monetize-its-healthcare-bets
Discussion: Companies Are Waking Up To Business Model Innovation	22/08/2016	Kavi Guppta	Talk	StratChat, Organizational Culture	During this talk Alexander Osterwalder reflects on the journey and offers concrete advice for what companies can do to seize the future of strategy and innovation	http://blog.strategyzer.com/posts/2016/8/22/discussion-companies-are-waking-up-to-business-model-innovation

Strategyzer & Toyota Financial Services: How An Off Site Created Strategic Alignment For Growth	29/08/2016	Kavi Guppta	Case Studies	Business Model Canvas, Case Studies	This post shows how Toyota Adopted Strategyzer's Tools to strengthen the organisation's alignment around a strategic business goal	http://blog.strategyzer.com/posts/2016/8/23/strategyzer-toyota-financial-services-how-an-off-site-created-strategic-alignment-for-growth
6 Essential Links For Preparing A Strategy & Innovation Workshop	05/09/2016	Kavi Guppta	List	Listicle, Workshops, Tools	This post provides a list of the most usefull BlogPost on designing, running, and managing a strategy and innovation workshop experience	http://blog.strategyzer.com/posts/2016/9/5/6-essential-links-for-preparing-a-strategy-innovation-workshop
13 Essential Strategyzer Links On Organizational Culture	12/09/2016	Kavi Guppta	List	Listicle, Culture Map, Organizational Culture	This post provide sa list of the most usefull BlogPost on Culture Map, designing a company culture and the organizational chart of the future	http://blog.strategyzer.com/posts/2016/9/13/13-essential-strategyzer-links-on-organizational-culture
Discussion: How To Design Products & Services Around The Price	19/09/2016	Kavi Guppta	Talk	Customer Development, StratChat, Testing	During this talk Alexander Osterwalder and Madhavan Ramanujam discuss on the he importance of designing products and services around the price, on how to monetize innovation and how to understand customer's willingness to pay	http://blog.strategyzer.com/posts/2016/9/19/discussion-how-to-talk-about-pricing-with-customers
Video Case: How Dong Energy Reinvented Itself While Being Successful	26/09/2016	Nabila Amarsy	Case Studies	Company Assessment, Enterprise, Video Case	Often companies focus to much on improvement instead of inventing and wait to long to search for new growth engines. This is not the case of Dong energy, because is a good example of ambidextrous approach to strategy and innovation. This post explains how Dong energy successfully improved its existing business model while also inventing new growth engines.	http://blog.strategyzer.com/posts/2016/9/26/visual-case-how-dong-energy-reinvented-itself-while-being-successful
Bootcamp Exclusive: Steve Blank On Lean Startup Inside Big Companies & More	03/10/2016	Kavi Guppta	Q&A	Customer Development, StratChat	During this Q&A session, Steve Blank answer audience questions on Lean Startup, innovation, and more inside large companies	http://blog.strategyzer.com/posts/2016/10/4/bootcamp-exclusive-steve-blank-on-lean-startup-inside-big-companies-more

Webinar Replay: Customers & Canvases In Healthcare Business Development	06/10/2016	Strategyzer	Talk	Case Studies, Customer Development, Entrepreneurship, Enterprise, Webinars	During this talk Alexander Osterwalder and Toby Reid discuss the importance of customer discovery within the healthcare industry, the need for companies in the pharmaceutical and healthcare industries to focus on validating market risk alongside technology risk and the importance of challenging assumptions, getting out of the building to talk to customers, and gathering hard market evidence	http://blog.strategyzer.com/posts/2016/10/6/webinar-replay-customers-canvases-in-healthcare-business-development
11 Corporate Habits That Kill Your Company's Innovation Engine	10/10/2016	Alexander Osterwalder	Post	Entrepreneurship, Enterprise, Innovation & Strategy, Listicle	This post breaks down the 11 corporate habits killing your company's innovation engine and the remedy to avoid them: 1) The current business model dominates the agenda 2) One-size-fits-all decision making hurts speed & inventiveness 3) Insisting on untested and detailed business plans 4) Opinions and past experience matter more than evidence 5) Outsourcing customer discovery and testing 6) Lack of senior leadership participation 7) Obsession of competitor rather than customers 8) Predominant focus on technology risk at the expense of other risks 9) Innovation is career suicide in most organizations 10) The innovation engine is siloed from the execution engine 11) Integrate new ideas into the execution engine too quickly	http://blog.strategyzer.com/posts/2016/10/10/11-corporate-habits-that-kill-your-companys-innovation-engine
Madhavan Ramanujam Shares 3 Common Pricing Mistakes Companies Make With Products & Services	17/10/2016	Kavi Guppta	Post	Customer Development, Testing, Value Proposition Design, StratChat	In this post Madhavan Ramanujam talks about 3 common pricing mistakes and the way to avoid them: 1) One-size-fits-all pricing 2) Emphasis on how much to charge versus how you charge 3) Treat pricing as a purely numbers exercise	http://blog.strategyzer.com/posts/2016/10/17/madhavan-ramanujam-shares-3-common-pricing-mistakes-companies-make-with-products-services
Alex Osterwalder On Inventing The Future With Business Model Innovation	24/10/2016	Strategyzer	Talk	Value Proposition Design, Live Talk	In this discussion, Alexander Osterwalder explains why companies need to grow beyond the business models that have worked for so long, and how companies	http://blog.strategyzer.com/posts/2016/10/24/alex-osterwalder-on-inventing-the-future-with-business-model-innovation

					can break out of the innovation processes of the past century	
Why Tim Cook Is Steve Ballmer & Why He Still Has His Job At Apple	31/10/2016	Steve Blank	Post	Company Assessment, Enterprise, Innovative CEOs vs Executive CEOs	In this post Steve Blank explains what happen to an organization when the visionary CEO is gone: most often innovation dies and the company coasts for years on momentum and its brand. Rarely does it regain its former glory. Blank provides two examples: Microsoft and Apple	http://blog.strategyzer.com/posts/2016/10/31/why-tim-cook-is-steve-ballmer-and-why-he-still-has-his-job-at-apple
Discussion: Toby Reid On Customer-Centric Healthcare Business Development	07/11/2016	Strategyzer	Talk	Testing, Customer Development, Enterprise, Webinars, StratChat	In this talk, Toby Reid continues the conversation and shares tips on talking to your customers to test new business ideas, even for an industry like healthcare	http://blog.strategyzer.com/posts/2016/11/7/discussion-toby-reid-on-customer-centric-healthcare-business-development
Learn By Example: Our Essential Video Cases To Help You With Business Model Innovation	14/11/2016	Strategyzer	List	Listicle, Strategyzer Tools, Value Proposition Canvas, Video Case	This post provides a list of the most usefull Video Cases useful to brush up on using the Business Model & Value Proposition canvas to communicate strategic thinking	http://blog.strategyzer.com/posts/2016/10/24/essential-strategyzer-video-cases-to-help-you-with-business-model-innovation
Webinar Replay: How To Facilitate Strategic Conversations With Visuals	17/11/2016	Strategyzer	Talk	Value Proposition Design, Webinars	During this talk Alexander Osterwalder talks about the importance of visual thinking and learning for developing thoughts, concepts, and ideas and how visuals can help simplify and clarify complex strategy conversations	http://blog.strategyzer.com/posts/2016/11/17/webinar-replay-how-to-facilitate-strategic-conversations-with-visuals
Discussion: How Can An Established Business Collaborate With Its Innovation Engine?	21/11/2016	Strategyzer	Talk	Organizational Culture, StratChat, Innovation & Strategy	In this discussion, Henry Chesbrough discusses the importance of collaboration between the existing business and its innovation engine	http://blog.strategyzer.com/posts/2016/11/15/discussion-how-the-established-business-can-collaborate-with-its-innovation-engine

Visual Discussion: 6 Concrete Tips For Using Visuals To Simplify Business Conversations	28/11/2016	Strategyzer	Q&A	Presenting, Drawing, StratChat	During this Q&A session Holger Nils Pohl answers audience questions on using visuals to simplify business conversations. He shares 6 concrete tips in our first visual StratChat conversation: 1) Practice 2) Get them sketching 3) which pircures 4) Whithe space 5) Stax connected 6) Visual muscle train	http://blog.strategyzer.com/posts/2016/11/28/visual-discussion-we-answer-audience-questions-on-using-visuals-to-simplify-business-conversations
How W.L. Gore & Associates Uses 10 Week Rapid Innovation Sprints To Uncover New Areas Of Growth	05/12/2016	Strategyzer	Q&A	Organizational Culture, Strategyzer Tools, Testing	During this Q&A session W.L. Gore how they are trying to uncover ways to accelerate growth through fast paced customer discovery and business model innovation	http://blog.strategyzer.com/posts/2016/12/2/rapid-innovation-sprints-help-uncover-new-areas-of-growth-at-wl-gore-associates
Ryanair Challenge: If You Give Your Business Model Away For Free, How Would You Make Money?	12/12/2016	Kavi Guppta	Case Studies	Company Assessment, Enterprise, Video Case	In this post is explained how Ryaniar has to change the Business Model Canvas in order to offer a new value proposition: $0 airfare	http://blog.strategyzer.com/posts/2016/12/12/ryanair-challenge-if-you-give-your-business-model-away-for-free-how-would-you-make-money
“Innovation” is dead. Long live “innovation”.	19/12/2016	Alexander Osterwalder	Post	Enterprise, Innovation & Strategy, Value Proposition Design	In this post Alexander Osterwalder discuss once more about the difference between Explore/Improve and Explore/Invent. The real innovation has 3 objectives: 1) Increase the efficiency of the established business 2) Sustain the established business 3) Create new growth engines	http://blog.strategyzer.com/posts/2016/12/19/innovation-is-dead-long-live-innovation
Thought Provoker: Vision, Hallucination, and Customer Reality	16/01/2017	Alexander Osterwalder	Post	Testing, Thought Provoker	This post warns about knowing customers: the more we rely on our opinion, the bigger the risk that we might be hallucinating. It’s only by testing, and Customer Discovery, that we unearth the customer reality	http://blog.strategyzer.com/posts/2017/1/16/thought-provoker-vision-hallucination-and-customer-reality

Thought Provoker: Amazon Inno Culture + Business Model Portfolio = Great Valuation	25/07/2017	Alexander Osterwalder	Post	Company Assessment, Entrepreneurship, Organizational Culture, Thought Provoker	Amazon is more valuable than all of its retail rivals altogether. How is this possible? Amazon's innovation culture, and ability to create a strong business model portfolio, allows the company to expand into many areas, whereas the traditional retailers are still primarily focused on one core retail business model making it difficult for them to stay relevant or branch out into areas of potential growth.	http://blog.strategyzer.com/posts/2017/1/23/thought-provoker-amazon-inno-culture-business-model-portfolio-great-valuation
Does Your Corporate Culture Match Your People's Aspirations?	30/01/2017	Alexander Osterwalder	Post	Organizational Culture, Enterprise, Employees	Right now, 70% of employees are unengaged and unhappy at work. Why? What employees expect and what companies offer is too often very different beacause corporate cultures of many organizations are outdated. Nowadays companies shouldn't just let culture happen. Companies need to design and manage their corporate culture systematically. Companies have to increase the overlap between what people desire and what the organization delivers if they're serious about attracting and retaining the best talent in the job market	http://blog.strategyzer.com/posts/2017/1/30/does-your-corporate-culture-match-your-peoples-aspirations
Why Lengthy Business Plans Increase The Risk Of Failure	07/02/2017	Alexander Osterwalder	Post	Customer Development, Enterprise, Entrepreneurship, Business Plan	Business plans are great for execution challenges like building a new factory or expanding your sales force. However, insisting on a business plan when it comes to innovation and new ventures is a terrible idea. Is better tp test and iterate rough ideas, until you have found sufficient evidence for a value proposition that customers want, and a profitable and scalable business model. 4 steps in order to do this: 1) Prototype 2) Question 3) Test 4) Iterate	http://blog.strategyzer.com/posts/2017/2/7/why-lengthy-business-plans-increase-the-risk-of-failure

Prototype, Learn, & Iterate	16/02/2017	Alexander Osterwalder	Post	Customer Development, Entrepreneurship, Innovation & Strategy, Strategyzer Tools, Testing, Thought Provoker, Value Proposition Design, Value Proposition Canvas, Business Model Canvas	At each stage of this innovation journey you should use different tools with different levels of granularity to prototype your ideas. Start with low fidelity prototypes that you can create, explore and test rapidly. Then, with more evidence, you increase the fidelity. In this post is presented a possible path : 1) Napkin sketch 2) Customer Profiles (right-hand side of the Value Proposition Canvas) 3) Value Map (left-hand side of the Value Proposition Canvas) 4) Business Model Canvas & Financial Prototype 5) Spreadsheets & Business Plans	http://blog.strategyzer.com/posts/2017/2/16/prototype-learn-iterate
What People Should Be Working On	02/03/2017	Alexander Osterwalder	Post	Employees, Thought Provoker, Organizational Culture	In order to have a better innovation inside the organization, great companies should always aspire to get their people to work on something they love doing, are good at, and that creates value for the company and market.	http://blog.strategyzer.com/posts/2017/3/2/what-people-should-be-working-on
Value Proposition Canvas: A Tool To Understand What Customers Really Want	09/03/2017	Alexander Osterwalder	Video	Strategyzer Tools, Value Proposition Canvas, Value Proposition Design	Strategyzer proposes this new video in order to present and explain the Value Proposition Canvas and how to create products and services that customers actually want	http://blog.strategyzer.com/posts/2017/3/9/value-proposition-canvas-a-tool-to-understand-what-customers-really-want
You Cannot Cost-Cut Yourself To Future Growth	14/03/2017	Alexander Osterwalder	Post	Enterprise, Innovation & Strategy, Intrapreneurs, Organizational Culture	When it comes to innovation inside large companies, the balance of power tips heavily toward sustaining and efficiency innovation instead of growth innovation. But nowadays, it's more important than ever for companies to focus on inventing the future, while managing the present. So, it's time that companies give more power and prestige to growth innovation that	http://blog.strategyzer.com/posts/2017/3/14/you-cannot-cost-cut-yourself-to-future-growth

					explores entirely new value propositions and business models.	
How Strong is Your Innovation Evidence?	21/03/2017	Alexander Osterwalder	Post	Customer Development, Entrepreneurship, Innovation & Strategy	In this post are presented some examples of possible experiments, based on evidence and time to conduct the experiments. So, in order to design the perfect mix of experiments an organization has to take in consideration: 1) Speed: how quickly does an experiment produce insights? 2) Strength: How strong is the evidence produced by an experiment?. As a rule of thumb you should start with quick and cheap experiments at the early stages of testing a new business idea.	http://blog.strategyzer.com/posts/2017/3/21/how-strong-is-your-innovation-evidence
The High Value Customer Jobs You Need to Focus On	27/03/2017	Alexander Osterwalder	Post	Value Proposition Canvas, Jobs Pain and Gain, Customer Development	When you create new value propositions and growth you need to focus on high-value customer jobs. High-value customer jobs are: 1) Important: when customer's success or failure to get the job done leads to essential gains or extreme pains 2) Tangible: When the pains or gains related to a job can be felt or experienced immediately or often 3) Unsatisfied: When current value propositions don't help to relieve pains or create desired gains in a satisfying way 4) Lucrative: When many people have the job with related pains and gains or when a small number of customers are willing to pay a premium.	http://blog.strategyzer.com/posts/2017/3/26/the-high-value-customer-jobs-you-need-to-focus-on

Why Every Company Needs A Chief Entrepreneur	30/03/2017	Alexander Osterwalder	Post	Enterprise, Entrepreneurship, Innovation & Strategy, Organizational Culture, Value Proposition Design	Transformative growth cannot take place inside corporations today with the organizational structures of the past that focus mainly on excellence in execution and incremental growth. In other words the exploitation of a known business model. The structure of 21st century companies has to be ambidextrous. It requires a CEO who exploits and improves an established business model (or portfolio of business models); while the Chief Entrepreneur is responsible for growth innovation initiatives (or an innovation portfolio), and its required culture	http://blog.strategyzer.com/posts/2017/3/30/why-every-company-needs-a-chief-entrepreneur
The Business Lifecycle	03/04/2017	Alexander Osterwalder	Post	Entrepreneurship, Innovation & Strategy, Value Proposition Design	In this business life cycle it's important to understand the different skill sets required for different phases. 1) Search Phase: start with an idea that you prototype, test and validate 2) Execution phase: once you have enough evidence that your idea will work, you start implementing and scaling the business.	http://blog.strategyzer.com/posts/2017/4/3/entrepreneurs-innovators-constantly-navigate-between-the-big-picture-the-nitty-gritty
How Much Do You Invest In Business R&D?	11/04/2017	Alexander Osterwalder	Post	Traditional R&D vs Business R&D, Organizational Culture	This post shoes the difference between the Traditional R&D (focusing on tech, research, or product development) and the Business R&D (exploring the right value propositions, new business models, managing a portfolio of business models and exploring new organizational cultures). Nowadays organization still need Traditional R&D but they need a greater emphasis on Business R&D	http://blog.strategyzer.com/posts/2017/4/11/how-much-do-you-invest-in-business-rd
Don't Allow Blah Blah Blah into Your Meeting	20/04/2017	Alexander Osterwalder	Post	Business Model Canvas, Value Proposition Canvas, Culture Map, Strategyzer's Tools	In this post is explained how visual tools as Business Model Canvas, Value Proposition Canvas, Culture Map can help to avoid wasting time, making the conversation more tangible and helping tocreate a shared visible language	http://blog.strategyzer.com/posts/2017/4/20/dont-allow-blah-blah-blah-into-your-meeting

How To Design Experiments That Matter	28/04/2017	Alexander Osterwalder	Post	Organizational Culture, StratChat, Testing, Webinars	During this discussion Alexander Osterwalder and Lean Startup expert David J. Bland share insights, tips and anecdotes on designing strong business experiments.	http://blog.strategyzer.com/posts/2017/4/28/how-to-design-experiments-that-matter
How To Test Your Idea: Start With The Most Critical Hypotheses	02/05/2017	Alexander Osterwalder	Post	Lean Startup, Listcle, Cycle	This post explainsthe path for Lean Startup, in order to test the attractiveness of business idea. You have to follow a cycle with these steps: Step 0 - Think (& Hypothesize), Step 1 - Build, Step 2 - Measure, Step 3 - Learn	http://blog.strategyzer.com/posts/2017/5/2/how-to-test-your-idea-start-with-the-most-critical-hypotheses
How To Track The Progress Of Business Experiments	08/05/2017	Alexander Osterwalder	Post	Customer Development, Innovation & Strategy, Testing, Strategyzer Tools	This post provides a structure to help organization to turn idea into real business. To do this, company should focus on the following elements: 1) Hypothesis 2) Experiment 3) Evidence 4) Insights 5) Action	http://blog.strategyzer.com/posts/2017/5/8/how-to-track-the-progress-of-business-experiments
The Corporate Innovation Ecosystem	15/05/2017	Alexander Osterwalder	Post	Customer Development, Enterprise, Innovation & Strategy, Organizational Culture	In this post are described three different areas within innovation ecosystem: 1) The core dominates: Business units with established business models and value propositions tend to dictate the innovation agenda 2) Innovation theatre: serial entrepreneur and innovation thought leader who have innovation labs, corporate accelerators, hackathons, and internal idea competitions, but it's all for show 3) Customer Access: Access to customers (or the lack of it) in order to test the desirability and viability of new ideas early on	http://blog.strategyzer.com/posts/2017/5/15/the-corporate-innovation-ecosystem

5 Tools For New Business Success	22/05/2017	Alexander Osterwalder	Post	Customer Development, Testing	In this post is provided a definition of success: Success means going from business idea (a new market, improve a business unit, a new technology, etc.) to a profitable and scalable business model with the minimum amount of time and money wasted. Is also provided a list of 5 tools that can help to get success: 1) Value Proposition Canvas 2) Strategy Canvas 3) Business Model Canvas 4) Business Model Environment 5) Team Alignment Map (TAM)	http://blog.strategyzer.com/posts/2017/5/22/5-tools-for-new-business-success
Comparing Business Models: Apple, Alphabet, Microsoft, Amazon & Facebook	01/06/2017	Alexander Osterwalder	Post	Company Assessment, Business Model Canvas	In this post are analyzed the 9 building blocks of the five tech giants: Apple, Alphabet, Microsoft, Amazon, Facebook. All five companies have very similar building blocks, but the importance of each one of those building blocks vary in each business model.	http://blog.strategyzer.com/posts/2017/6/1/comparing-business-models-apple-alphabet-microsoft-amazon-facebook
The Difference Between Amazon & Nestlé	06/06/2017	Alexander Osterwalder	Post	Three Horizon of Growth, Company Assessment, Enterprise, Entrepreneurship, Organizational Culture	This post describes the three horizon model of innovation. Companies managed by Horizon 1 CEOs focus primarily on optimizing the existing and proven business model and value propositions. Companies led by Horizon 3 CEOs typically reinvent or expand their business models and value propositions systematically while they're still successful. They are willing to accept that some innovations will fail	http://blog.strategyzer.com/posts/2017/6/6/the-difference-between-amazon-nestl
Michelin: The Right Business Model Can Make Sustainability Profitable	14/06/2017	Alexander Osterwalder & Greg Bernarda	Post	Michelin, Sustainability, Business Model, Entrepreneurship	This post describes how Michelin changed his Business Model. Michelin essentially re-architected its business model to give haulage companies its tires away for free (the same as Rolls-Royce). The organization would provide a suite of services and start charging its customers by the kilometre and taking responsibility for their disposal. The main achievement are : 1) transformation of the customer	http://blog.strategyzer.com/posts/2017/6/14/michelin-the-right-business-model-can-make-sustainability-profitable

					relationship from being transactional into one focused on long-term contracts 2) Manufacturing less and recycling better	
Testing Before Building Is The Key To Success	15/06/2017	Strategyzer	Talk	Customer Development, StratChat, Testing, Webinars, Value Proposition Canvas	During this discussion Alexander Osterwalder and Tony Ulwick discuss the importance of customer testing before building a solution	http://blog.strategyzer.com/posts/2017/6/12/testing-before-building-is-the-key-to-success
Assess & Design Your Innovation Portfolio	19/06/2017	Alexander Osterwalder & Yves Pigneur	Post	Enterprise, Entrepreneurship, Innovation & Strategy, Value Proposition Design	In this post Osterwalder and Pigneur explain the Business R&D , inspired by McKinsey's three horizon framework. Every company needs a portfolio of innovation projects. These projects should range from exploiting and improving the existing and proven business model, all the way to exploring completely new business models in new and emerging markets	http://blog.strategyzer.com/posts/2017/6/19/assess-design-your-innovation-portfolio
Mastering Value Propositions	29/06/2017	Strategyzer	Talk	StratChat, Value Proposition Canvas, Value Proposition Design, Webinars	In this post Alexander Osterwalder explains how the Value Proposition Canvas is transforming the way companies create value for customers	http://blog.strategyzer.com/posts/2017/6/27/mastering-value-propositions

Why Fortune 500s Don't Invest In Growth	10/06/2017	Alexander Osterwalder	Post	Enterprise, Entrepreneurship, Organizational Culture, Value Proposition Design	In this post is described how growth (and the action of exploring) requires a venture capital type investment philosophy, while traditional shareholder expect predictable growth without risk	http://blog.strategyzer.com/posts/2017/7/10/why-fortune-500s-dont-invest-in-growth
An Open Letter To CEOs	17/07/2017	Alexander Osterwalder & Yves Pigneur	Letter	Company Assessment, Enterprise, Entrepreneurship, Organizational Culture	In this letter Osterwalder and Pigneur gave 3 food for thought to CEOs, who are faced with the challenge of creating new and transformative growth inside their companies: 1) The leadership challenge: simultaneously manage the present and invent the future 2) What does an innovation engine do? 3) The challenge has changed, and so the organization needs to change.	http://blog.strategyzer.com/posts/2017/7/11/an-open-letter-to-ceos
Business Model Portfolio Part 1: Manage The Existing Business	23/08/2017	Alexander Osterwalder & Yves Pigneur	Post	Business Model Canvas, Business Model Generation, Business Modelling, Company Assessment, Enterprise	In this post Alexander Osterwalder and Yves Pigneur describe the new prototype concept for helping companies visualize and manage their business model portfolio and consequently to make better investment decisions. This prototype provides for two axis: 1) Profitability 2) Sustainability or disruption risk.	http://blog.strategyzer.com/posts/2017/8/23/business-model-portfolio-part-1-manage-the-existing-business
Business Model Portfolio Part 2: Manage New Business Initiatives	28/08/2017	Alexander Osterwalder & Yves Pigneur	Post	Enterprise, Entrepreneurship, Innovation & Strategy, Strategyzer Tools	In this post Alexander Osterwalder and Yves Pigneur propose a way to represent an organization's portfolio of new business model initiatives to create new growth engines. To visualize the portfolio of potential new businesses are used two axis: 1) Expected Return 2) Innovation Risk.	http://blog.strategyzer.com/posts/2017/8/28/business-model-portfolio-part-2-manage-new-business-initiatives

Business Model Portfolio Part 3: The Business Portfolio Map	04/09/2017	Alexander Osterwalder & Yves Pigneur	Post	Enterprise, Entrepreneurship, Innovation & Strategy, Strategyzer Tools	In this post Alexander Osterwalder and Yves Pigneur propose the Business Portfolio Map, in order to help organizations understand if their business is prepared for the future or risk disruption. It helps to visualise all of your existing businesses, as well as all of your new growth initiatives. How to manage the Business Model Portfolio? £ steps are proposed: 1) Assess 2) Strategize 3) Process: Implement your innovation strategy and transform your portfolio with three type of actions: a) Create b) Raise c) Eliminate	http://blog.strategyzer.com/posts/2017/9/4/business-model-portfolio-part-3-the-business-portfolio-map
Replay: 11 Corporate Habits That Kill Your Company's Innovation Engine	07/09/2017	Strategyzer	Talk	StratChat, Value Proposition Design, Value Proposition Canvas, Webinars	During this talk Alexander Osterwalder explains some killer company habits that wreak havoc on the innovation engine and remedies to get around these problems or eradicate them completely.	http://blog.strategyzer.com/posts/2017/8/30/11-corporate-habits-that-kill-your-companys-innovation-engine
How Customers Adopt Products	11/09/2017	Alexander Osterwalder	Post	Customer Development, Enterprise, Entrepreneurship	In this post is presented the Forces Diagram, that helps to understand why customers may switch or may not switch to a new value proposition or solution. The tool highlights two opposing forces in the adoption of new value propositions: 1) Motivators to Switch: Push, Pull 2) Blockers to Switch: Inertia, Anxiety	http://blog.strategyzer.com/posts/2017/9/11/how-customers-adopt-products

Appendix 3 – Blockchain knowledge-base

Blockchain 101

Title	Date	Author	Link	Type
How the Blockchain is changing money and business	22/06/2016	Don Tapscott	https://www.ted.com/talks/don_tapscott_how_the_blockchain_is_changing_money_and_business	TED Talk
Blockchain - The New Technology of Trust	23/09/2015	Goldman Sachs	http://www.goldmansachs.com/our-thinking/pages/blockchain/	Presentation
GRAPHENE- An open source Blockchain	01/03/2017	Phil Mesnier	https://objectcomputing.com/resources/publications/sett/march-2017-graphene-an-open-source-blockchain/	Post
How the Blockchain will radically transform the economy	01/06/0216	Bettina Warburg	https://www.ted.com/talks/bettina_warburg_how_the_blockchain_will_radically_transform_the_economy	TED Talk
Making Sense of Cryptoeconomics	19/08/2017	Josh Stark	https://www.coindesk.com/making-sense-cryptoeconomics/	Post
The New Pachinko? Exploring the Economics of Initial Coin Offerings	20/08/2017	Avtar Sehra	https://www.coindesk.com/the-new-pachinko-exploring-the-economics-of-initial-coin-offerings/	Post
What are Appcoins?	18/10/2016	Peter Van Valken Brito	https://coincenter.org/entry/what-are-appcoins	Post
Ethereum Gas	12/05/2017	Smeemit	https://steemit.com/ethereum/@tomshwom/ethereum-gas-how-it-works	Post
Comparing Bitcoin, Ethereum, and Other Crypto	13/09/2017	Jeff Desjardins	http://www.visualcapitalist.com/comparing-bitcoin-ethereum-cryptos/	Post
Thinking outside the blocks, a strategic perspective on Blockchain and Digital Tokens	01/12/2016	Philip Evans	https://www.bcg.com/blockchain/thinking-outside-the-blocks.html	Post
The DAO, The Hack, The Soft Fork and The Hard Fork	28/09/2017	CryptoCompare	https://www.cryptocompare.com/coins/guides/the-dao-the-hack-the-soft-fork-and-the-hard-fork/	Post

What is Ethereum Classic	29/09/2017	CryptoCompare	https://www.cryptocompare.com/coins/guides/what-is-ethereum-classic/	Post
The DAO, The Hack, The Soft Fork and The Hard Fork	28/09/2017	CryptoCompare	https://www.cryptocompare.com/coins/guides/the-dao-the-hack-the-soft-fork-and-the-hard-fork/	Post
The Byzantium Countdown: What's Left Before Ethereum's Next Fork?	11/10/2017	Rachel Rose O'Leary	https://www.coindesk.com/byzantium-countdown-whats-left-ethereums-next-fork/	Post
Just SegWit? Bitcoin Core Is Already Working on a New Scaling Upgrade	12/10/2017	Alyssa Hertig	https://www.coindesk.com/just-segwit-bitcoin-core-already-working-new-scaling-upgrade/	Post
SegWit Goes Live: Why Bitcoin's Big Upgrade Is a Blockchain Game-Changer	23/08/2017	Alyssa Hertig	https://www.coindesk.com/50-blocks-segwit-bitcoins-coming-upgrade-blockchain-game-changer/	Post
Explainer: What Is SegWit2x and What Does It Mean for Bitcoin?	12/07/2017	Alyssa Hertig	https://www.coindesk.com/explainer-what-is-segwit2x-and-what-does-it-mean-for-bitcoin/	Post
What are Dapps?	16/03/2015	Erik Vollstadt	https://blog.bitnation.co/what-are-dapps/	Post
Dapps And The Decentralized Future	03/05/2017	Blockgeeks	https://blockgeeks.com/guides/dapps-the-decentralized-future/	Post
Ethereum White Paper-Revision	17/09/2017	Ethereum Foundation	https://github.com/ethereum/wiki/wiki/White-Paper	Paper
What is a Decentralized Application?	06/08/2016	Alyssa Hertig	https://www.coindesk.com/information/what-is-a-decentralized-application-dapp/	Post
What is Rootstock (RSK)	28/09/2017	CryptoCompare	https://www.cryptocompare.com/coins/guides/what-is-rootstock/	Post

Ecosystems

Title	Date	Author	Link	Type
Mapping the decentralized world of tomorrow	01/06/2017	Alexander Lange	https://medium.com/birds-view/mapping-the-decentralized-world-of-tomorrow-5bf36b973203	Post
The Entire Blockchain Ecosystem in One Visualization	17/06/2017	Jeff Desjardins	http://www.visualcapitalist.com/blockchain-ecosystem-visualization/	Post
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Finance and Beyond: An Infographic Map of Bitcoin and the Emerging Blockchain Ecosystem	27/04/2016	Jacob Donnelly	https://bitcoinmagazine.com/articles/finance-and-beyond-an-infographic-map-of-bitcoin-and-the-emerging-blockchain-ecosystem-1461789453/	Post
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Global Ledger: Mapping Bitcoin & Blockchain Startups Around The World	06/03/2017	CB Insights	https://www.cbinsights.com/research/bitcoin-blockchain-startup-global-map/	Post
21 Areas of Blockchain Application Beyond Financial Services	01/12/2017	Elena Mesropyan	https://letstalkpayments.com/21-areas-of-blockchain-application-beyond-financial-services/	List
5 Blockchain Applications That Are Shaping Your Future	28/11/2016	Ameer Rosic	http://www.huffingtonpost.com/ameer-rosic-/5-blockchain-applications_b_13279010.html	Post
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Ledger Fever: 95 Bitcoin & Blockchain Startups In One Market Map	23/02/2017	CB Insights	https://www.cbinsights.com/research/bitcoin-blockchain-startup-market-map/	Post
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Thoughts on the taxonomy of blockchains & distributed ledger technologies	27/02/2017	Colin Platt	https://www.linkedin.com/pulse/thoughts-taxonomy-blockchains-distributed-ledger-colin-platt/	Post
SAN Token Utility, and how it will take Santiment to Dominance	30/06/2017	Mitchell Loureiro	https://medium.com/santiment/san-token-utility-and-how-it-will-take-santiment-to-dominance-3d138683620	Post
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Token Summit I - What are Cryptoassets Actually Worth	12/06/2017	Chris Burniske	https://www.youtube.com/watch?v=ooKXtFoMjtY	Talk
Token Summit I - Attention Tokens	13/06/2017	Brendan Eich, Ned Scott, Simon De La Rouviere, Maciej Olpinski	https://www.youtube.com/watch?v=0POkG42H-4s	Talk
Token Summit I - Business Models Behind Tokens	03/06/2017	M. Ali, J. Benet, S. Wilkinson, D. Vorick	https://www.youtube.com/watch?v=OC2OcOdLQqY	Talk