UNIVERSIDADE ESTADUAL DO CEARÁ

CENTRO DE ESTUDOS SOCIAIS APLICADOS

PROGRAMA DE PÓS-GRADUAÇÃO EM ADMINISTRAÇÃO

DOUTORADO EM ADMINISTRAÇÃO

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SHAPING CRYPTOECONOMICS AS A NEW MARKET THROUGH BUSINESS MODEL INNOVATION

FORTALEZA – CEARÁ

2021

RESUMO

O mercado derivado dos modelos de negócios baseados na Criptoeconomia tem impactado organizações, clientes e sociedade. Em suma, a Criptoeconomia aborda a combinação de criptografia e incentivos econômicos, sob a forma de criptoativos, para encorajar eventos futuros em um sistema *blockchain*. O advento da Criptoeconomia desencadeou diversas oportunidades para Inovação em Modelos de Negócio (IMN). Um modelo de negócio inovativo pode moldar um novo mercado e permitir que uma organização explore capacidades estratégicas para criação de valor. Entretanto, a formação de mercados não é trivial porque vai além das mudanças incrementais que ocorrem por meio do processo de competição. Tal ocorrência de novos mercados demanda uma conceitualização sistêmica e, para este fim, a epistemologia das práticas tem sido proeminente, tendo em vista o potencial socio-construtivista de enfatizar o caráter emergente e plástico da realidade, bem como captar o significado sobre a formação do mercado conforme ocorre. No entanto, constata-se uma escassez de pesquisas sobre como as organizações têm praticado a Criptoeconomia para moldar novos mercados através da IMN. Reconhecendo tal lacuna de pesquisa e a sua relevância prática, o presente trabalho relata um estudo multi-método para avançar a compreensão da formação do mercado e a IMN no contexto da Criptoeconomia. Inicialmente, realizou-se uma revisão sistemática da literatura para analisar de forma abrangente o estado-da-arte. Em seguida, orquestrou-se um *framework* conceitual pioneiro para descrever as atividades de IMN envolvidas na formação de mercados baseados na Criptoeconomia. À luz do referido *framework*, investigou-se seis empresas como estudos de caso para desdobrar a configuração do mercado na prática, seguindo os princípios da triangulação de dados com o apoio de entrevistas em profundidade, observação discreta e análise documental. Essa pesquisa tem implicações teóricas e gerenciais, pois contribui para estender a compreensão atual ao fornecer uma conceituação diferenciada sobre como as empresas (que exploram a Criptoeconomia para proposição de valor) desenvolveram suas estratégias de IMN para a formação de mercado através de um esforço coordenado pautado por diferentes níveis de influência e elementos configuráveis.

Palavras-chave: Criptoeconomia. Construção de Mercados. Inovação em Modelos de Negócios. Práticas de Mercado.

ABSTRACT

An emerging market that has been impacting organizations, customers, and society is the one embedded by the Business Models (BM) based on Cryptoeconomics. Overall, Cryptoeconomics approaches the combination of cryptographic and economic incentives, in the form of cryptoassets, to encourage future events inside a blockchain system. In this sense, the advent of Cryptoeconomics has sparked several opportunities for Business Model Innovation (BMI) along with new forms of peer-to-peer economic activity. An innovative BM can shape a new market and allow a company to exploit strategic capabilities for value creation. Nonetheless, the shaping of markets is nontrivial in that it goes beyond incremental changes occurring in markets through the process of competition. This occurrence of new markets needs to be conceptualized as a systemic process and, to this end, the epistemology of practices has been proven to be insightful given its socio-constructionist potential of stressing the emergent and plastic character of reality as well as capturing meaning about market shaping as it occurs. However, research so far has been scarce in investigating how companies have been practicing the use of Cryptoeconomics to shape new markets through BMI. Acknowledging both the research gap and the practical relevance of BMs in market shaping representation, we designed a multi-method study to advance the understanding of market shaping and BMI in the context of Cryptoeconomics. Initially, we conducted a systematic literature review to analyze the state-of-the-art comprehensively. Then, we orchestrated a pioneer conceptual framework to deconstruct and describe BMI activities involved in shaping markets triggered by Cryptoeconomics. In the light of our framework, we investigated six companies as case studies to unfold the market shaping in practice by following the principles of data triangulation by means of in-depth interviews, unobtrusive observation, and document analysis. In summary, our study has theoretical and managerial implications by contributing to extend current understanding by providing a nuanced conceptualization about how firms (who devised Cryptoeconomics as a tool for value proposition) have developed their BMI strategies for market shaping through a coordinated effort on different levels of influence and designable elements.

Keywords: Cryptoeconomics. Market Shaping. Business Model Innovation. Market Practices.

LISTA DE ILUSTRAÇÕES

LISTA DE ABREVIATURAS E SIGLAS

ABCripto	Brazilian Association of Cryptoeconomics
BM	Business Model
BMD	Business Model Design
BMI	Business Model Innovation
BMR	Business Model Reconfiguration
CEO	Chief Executive Officer
CNAE	National Classification of Economic Activities
CNPJ	National Register of Legal Entities
CVM	Commission of Movable Values
DeFi	Decentralized Finance
DSR	Design Science Research
ICO	Initial Coin Offering
SLR	Systematic Literature Review
STO	Security Token Offering
TCA	Thematic Analysis of Content
UX	User eXperience

SUMÁRIO

1 INTRODUCTION

In this chapter, we introduce the motivation as well as the research problem tackled by our study. We also overview the research design, implications, and objectives of this work. Lastly, we present the dissertation structure organization.

1.1 Motivation

In the Theory of Economic Development, Schumpeter described development as a historical process of structural changes, substantially driven by innovation (SCHUMPETER, 2017). According to Schumpeter's seminal work, anyone seeking profits must innovate (ŚLEDZIK, 2013). In this scenario, innovation has been considered one of the most important concerns of each organization, and its role in the development and coordination of the market is inalienable (TOHIDI; JABBARI, 2012).

Thus, innovation is often viewed as a positive force, contributing to firm growth and economic development, and providing an explanation for why some firms outperform others (ROGERS, 2010; ROUSSEAU et al., 2016). This competitive scenario has amplified the need to consider not only how to address customer needs more cleverly but also how to capture value from providing new products and services (TEECE, 2010; DRUCKER, 2014). Encompassing this need, a Business Model (BM) is approached as essential to every organization to drive future efforts of value proposition, whether it is a new venture or an established player (MAGRETTA, 2002; MAGLIO; SPOHRER, 2013).

In essence, a BM is the rationale of how an organization creates, delivers, and captures value (OSTERWALDER; PIGNEUR, 2010). Business Model Innovation (BMI), in turn, refers to the convergence of both a new profit model and a new customer value proposition, unified to create an entirely new type of market player (COMES; BERNIKER, 2008). Through BMI, companies may design new business logics towards competitive advantage as well as incorporate new ways to capture value (CASADESUS-MASANELL; ZHU, 2013; TEECE, 2010). As pointed out by Weiller e Neely (2013), the majority of companies have to adapt and design new BMs to retain a competitive advantage in highly networked and dynamic environments. As a result, there is a promising research avenue focusing on the design of new BMs (REUVER; HAAKER, 2009; CHAUDHARY et al., 2015; RAYNA; STRIUKOVA, 2016) that open up and shape new markets (THOMPSON; MACMILLAN, 2010; KJELLBERG et al., 2015).

A quickly-growing market that has been attracting awareness is the one embedded by cryptoassets. According to Braddick et al. (2018), cryptoassets are “a cryptographically secured digital representation of value or contractual rights that uses some type of distributed ledger technology and can be transferred, stored or traded electronically”. Some of the inherent properties of cryptoassets make the underlying technology an appealing candidate for amending or eventually displacing transaction infrastructure (GLASER; BEZZENBERGER, 2015; RODRIGUES et al., 2018). From this ongoing interest in cryptoassets and their notable impact on society, an emerging field known as Cryptoeconomics has raised (TREIBLMAIER; BECK, 2019).

In brief, Cryptoeconomics brings together the fields of Economics and Computer Science to study protocols governing the decentralized digital economy and applications built by combining cryptography with economic incentives (BASHIR; VERMA, 2017; MIT, 2019; TREIBLMAIER; BECK, 2019). As clarified by Voshmgir e Zargham (2020), the earliest recorded citation of the term Cryptoeconomics is from a talk by Vlad Zamfir (ZAMFIR, 2015), which was later loosely formalized in blog posts and talks by Vitalik Buterin (BUTERIN, 2017) (both of them are protocol researchers at the Ethereum foundation). Further, the term has gained traction in the broader developer community and in academic scenario (CATALINI; GANS, 2016; BERG et al., 2019), but it still remains under-defined, possibly because of the variety of contexts. Indeed, a multitude of innovative projects has been unfolding to provide products and services encompassing the cryptoassets ecosystem, ranging from a means of payment (NAKAMOTO, 2008) or even for as an incentive platform (YANG, 2018; MACHEEL, 2018).

However, as the business itself is embedded in a market, BMs need to be understood as constituent parts of markets too (CALLON, 1998b). Mason e Spring (2011), for example, argue that BMs’ value lies in their ability to frame the action and reveal connexions between those actions across multiple levels of analysis. The argument is that firms shape markets as much as markets shape firms (TEECE, 2009). Thus, rather than obeying ordinary laws of cause and effect, markets constantly evolve from both emergence and deliberate design, being able to be constructed and reconstructed (NENONEN; STORBACKA, 2018a). In this sense, we build on (NENONEN et al., 2019b) who draw this Market Shaping phenomenon as “a purposive process by a focal firm to (1) discover the value potential of linking intra- and inter-stakeholder resources in novel ways, (2) trigger changes in various market characteristics to enable the formation

of new resource linkages, and (3) mobilize relevant stakeholders to free up extant resources for new uses". In line with the BMI principles, a market shaping orientation empowers organizations towards enhancing value creation and value realization for actors within a market system (NENONEN et al., 2019b).

In this regard, forward-looking firms are increasingly viewing markets as malleable and plastic systems that can be influenced (NENONEN et al., 2014). By assuming this proactive perspective, we assume markets as elements of ongoing processes, to be influenced and shaped by the actors involved through their own activities and through the coordinated activities of multiple actors (KINDSTRÖM et al., 2018). This assumption is backed up by the thought that different market views, depending on from what angle the market is defined, can co-exist simultaneously, even within a company (LINDHOLM, 2020). By recognizing the import of market representations, efforts have been made to characterize the social construction of markets in terms of ongoing practices through an epistemology grounded on the *Theory of Practices* (ARAUJO et al., 2010; CALLON et al., 2002; IPIRANGA; AGUIAR, 2014). A central tenet in this theory is the idea that working markets are always in the making; that they are the continuous results of market practices whose purpose is to represent "all activities that contribute to constitute markets" (KJELLBERG et al., 2012; KJELLBERG; HELGESSON, 2007b).

This practice orientation stands in opposition to individualist ontologies where social phenomena are viewed as products arising out of the actions and mental states of individuals, and societism understood as the study of social facts, structures, and systems that resist reduction to individual actors (SCHATZKI, 2005; LATOUR, 2005; GHERARDI, 2012; GOMES et al., 2020). Wieland et al. (2017) argue that BMs, markets, and technologies all share an institutional foundation and, consequently, the use of BMs cannot be unique to producers as all economic and social actors continually use BMs in their enactment of resource integration and market practices. Thus, a practice approach invites a wider perspective to investigate how specific markets are shaped by which activities and between who (VENKATESH et al., 2006). This phenomenon reveals to be a far-sighted lens to understand what market shaping has to teach us about Cryptoeconomics and, ultimately, how it may posit as a valuable resource for fostering BMI.

1.2 Research Problem

Differently from what most people assume, serving as a means of exchange (such as bitcoin) is only one of the several BMs designed based on cryptoassets. In fact, the advent of different types of cryptoassets has leveraged many innovative BMs with sizable valuations of their own, and with new forms of peer-to-peer economic activity (HILEMAN; RAUCHS, 2017; DINIZ et al., 2018). However, despite posing as promising, management research so far has been scarce in drawing the BMs based on Cryptoeconomics as a new market, including its theoretical underpinning. Nonetheless, the shaping of markets is nontrivial in that it goes beyond incremental changes occurring in markets through the process of competition (NENONEN et al., 2019b). In this regard, empirical work on market shaping is limited, leading Jaworski e Kohli (2017) to highlight that “the idea of shaping, molding, and managing the evolution of markets has been around for some time, but has not taken off in terms of systematic inquiry”. As stated by Zietsma e McKnight (2009) and Nenonen e Storbacka (2018a), the occurrence of new markets needs to be conceptualized as a systemic process in which multiple actors, all guided by BMs, engage in ongoing market practices fostering value creation.

Thus, by attending to a market shaping perspective, we may advance the understanding about how to enhance the value creation and value realization for actors within a market system (NENONEN et al., 2019b). To this end, we assume that markets are constructed through a range of market practices involving different forms of expertise and material devices (KJELLBERG; HELGESSON, 2006; KJELLBERG; HELGESSON, 2007b). Hence, by examining actions on the ground and their resulting enactments, a practice approach calls attention to the emergence of gaps, tensions, contradictions, and disruptions that overflow habitual and normalized performances, generating problematic as well as constructive outcomes (BARRETT; ORLIKOWSKI, 2021). An in-depth comprehension in this direction reveals to be of particular relevance in the case of Cryptoeconomics since we are dealing with a sparking scenario grounded in a profound emergence of novel BMs that has been transforming and impacting the society as well as generating thoughtful discussions.

Therefore, the aforementioned research gap encouraged us to conduct an empirical study aiming to investigate **how Cryptoeconomics has been practiced by forward-looking firms to shape new markets through BMI**.

1.2.1 Research Scope

Our research scope embraces the use of multiple case studies (YIN, 2017) to investigate our research problem. More specifically, this research results from combining a variety of research methods following a Design Science Research (DSR) protocol (VAISHNAVI; KUECHLER, 2004), including systematic literature review (FINK, 2019), theoretical essay (WANDERLEY; CULLEN, 2013), desk research (VERSCHUREN et al., 2010), in-depth interviews (BOYCE; NEALE, 2006), unobtrusive observation (BURLES; BALLY, 2018), and document analysis (BOWEN et al., 2009). Addressing Miles et al. (1994), Mead et al. (1967), and Wittgenstein (2009), we conducted a pragmatic-interactionist approach to the analysis of qualitative data grounded as an exploratory study. In summary, our research scope comprises three major levels of abstraction.

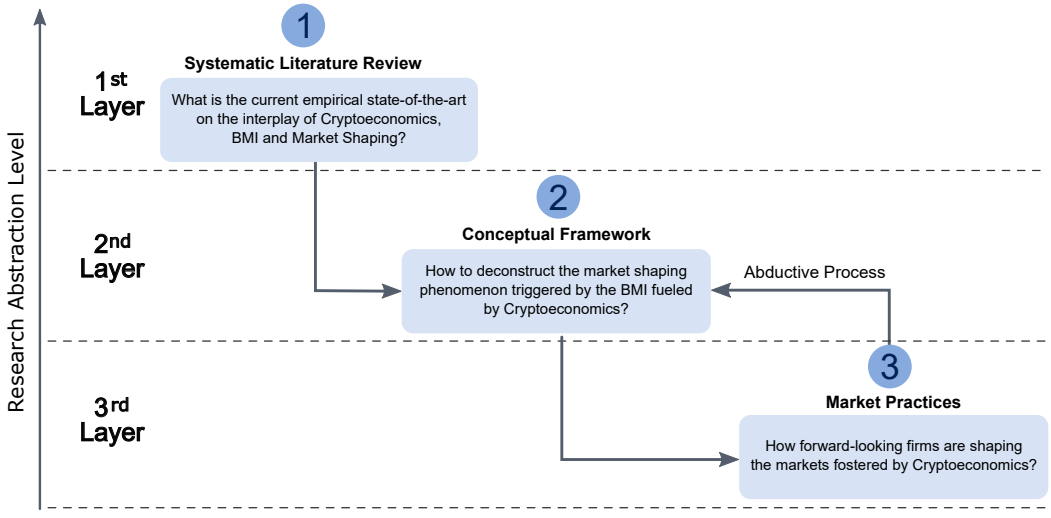
Initially, we conducted a systematic literature review in order to answer our first research question: *What is the current empirical state-of-the-art on the interplay of Cryptoeconomics, BMI and Market Shaping?* Acquiring this theoretical knowledge helped us to (1) to discuss when, how many times and in which context Cryptoeconomics has been addressed in BMI and Market Shaping literature; (2) to bring up recent results, from other researchers, related to the impact of Cryptoeconomics towards BM studies; (3) to depict for the managers, upon insights from different market segments, the potential of cryptoassets as an innovative tool for BMI; and ultimately, (4) to point out to some open questions and remaining challenges to be addressed on that issue, including the one addressed by this research.

After investigating the state-of-the-art, we could unravel a research gap on understanding how firms have been leveraging the use of Cryptoeconomics to shape new markets through BMI. To explore this question in-depth, we articulated both a theoretical essay and desk research to conceptualize a pioneer practice-oriented conceptual framework designed to answer the following research question: *How to deconstruct the Market Shaping phenomena triggered by the BMI fueled by Cryptoeconomics?* Through this framework, we could advance and clarify the variety of market practices and designable elements performed alongside different levels of shaping in the light of BMI elements. By offering an understanding of how firms would attempt to create and capture value through cryptoassets, our work contributes to the emerging field of inquiry on the practices that make BM shape markets (MASON; SPRING, 2011).

Finally, the third stage sought to empirically uncover i) which market practices are enacted towards market shaping and ii) how these market practices are translated into market shaping. In this phase, we investigated six firms as case studies by in-depth interviewing 17 high-level managers with the supplement of unobtrusive observation and document analysis. This data triangulation procedure was done aiming to answer our last research question: *How forward-looking firms are shaping the markets fostered by Cryptoeconomics?* Over this constructionist approach, we embraced the argument that markets are not casual creations but constructed through a range of market practices that influence and are influenced by value proposition strategies designed by BMs.

In line with the previous argues, Figure 1 depicts the research abstraction layers around the proposed research questions, including their complementary relationship, ranging from theory to process and, finally, to practice. As framed in the first layer of abstraction [theory], we initially aimed to theoretically frame the current state-of-the-art regarding Cryptoeconomics, BMI, and Market Shaping. Then, we went down a level of abstraction [process] aiming to design a conceptual framework able to depict how new markets may be shaped by Cryptoeconomics in the light of BMI literature. In the last layer [practice], we seek to empirically uncover how forward-looking firms are shaping the markets fostered by Cryptoeconomics. In this sense, we engaged in an abductive research approach by tacking back and forth between empirical analysis and literature in order to refine our conceptual framework articulation in regard to emergent categorizations and their relationship (GIOIA et al., 2013).

Figura 1 – Research abstraction layers



Fonte: Elaborated by the author.

1.2.2 Theoretical and Managerial Implications

By combining a variety of research methods, this dissertation has implications for the earlier theoretical findings of how Cryptoeconomics has been practiced by forward-looking firms to shape new markets through BMI. To the best of our knowledge, this is the first time that this research scope is empirically investigated. Overall, we may summarize that this research advances knowledge in three major ways: i) bringing up recent results, by means of a SLR, related to the impact of Cryptoeconomics in BMI and market shaping studies, including the highlight of open questions and remaining challenges; ii) providing a conceptual framework bridging the market practices to the BMI literature in order to clarify pivotal elements for understanding the market shaping process enacted by companies who devise Cryptoeconomics as a strategic tool for value proposition and, finally, iii) unfolding the market practices associated to the market shaping, including how these practices are interlinked as socio-material phenomena in the light of BMI. By unfolding market practices (KJELLBERG; HELGESSON, 2007b), we extend current understanding by offering a nuanced conceptualization about how firms have developed their BMI strategies for market shaping through a coordinated effort on different levels of influence and designable elements. In methodological terms, our research design reveals to be insightful and useful for uncovering market practices (by means of a multi-method protocol), which implies that it could be useful for other researchers to adapt the protocol as necessary.

Our findings also provide managerial implications for decision makers involved in the design and operation of BMs based on Cryptoeconomics. Hopefully, this study may help managers to gain insights into these ongoing and situated processes by being attuned to the scalar implications of digital work practices (BARRETT; ORLIKOWSKI, 2021). As raised by Mason e Spring (2011), “what is particularly insightful and helpful in building an understanding of the emergent BM literature through a practice theory lens, is the notion that not only do practices link what people think with the way they act, (and with what, whom and where) but also that practices are by nature routinized types of behaviour which consist of several interconnected elements”. In doing so, understanding new markets shaped by BMs based on Cryptoeconomics, its practices, and the relation of them with the objective of creating value may help other organizations towards improving their BMs or even creating a new one.

1.3 Objectives

Our main objective with this research is to investigate how Cryptoeconomics has been practiced by forward-looking firms to shape new markets through BMI. Regarding the specific objectives, we aim to:

- Depict the current state-of-the-art as well as future managerial research directions towards the interplay of Cryptoeconomics, BMI, and Market Shaping;
- Design a conceptual framework to deconstruct the market shaping triggered by the BMI fueled by Cryptoeconomics;
- Unfold the market practices translated by forward-looking firms into the market shaping fostered by Cryptoeconomics.

1.4 Dissertation Outline

This work is organized into six chapters, including this introduction. The rest of the chapters is summarized as follows. In Chapter 2, we review the theoretical underpinnings concerning the fundamentals of Blockchain, Cryptoeconomics, BMI, and Social Construction of Markets. In Chapter 3, we explain our research framing by describing the methodological plan addressed for this study. In Chapter 4, we describe the findings from our systematic literature review, including the bibliographic results and identified challenges. In Chapter 5, we detail our conceptual framework and its operationalization, in which we derived from multiple sources. In Chapter 6, we focused on the empirical evaluation conducted in order to uncover, categorize, and interlink market practices in the light of our proposed framework. Finally, in Chapter 7, we summarize our final remarks, contributions to theory and managerial practice, and nominate avenues for further research.

2 THEORETICAL UNDERPINNINGS

In this section, we provide theory-based explanations and definitions for the major concepts that our research addresses. We firstly approach blockchain as the foundational technological to the cryptoassets development. Then, we discuss the main theoretical elements related to the Cryptoeconomics, including the role of mechanism design and tokens as well as a cryptoassets taxonomy. Third, we carry out an explanation about BMI literature. Finally, we introduce the Market Practices and, further, the Social Construction of Markets through the lens of Market Shaping literature.

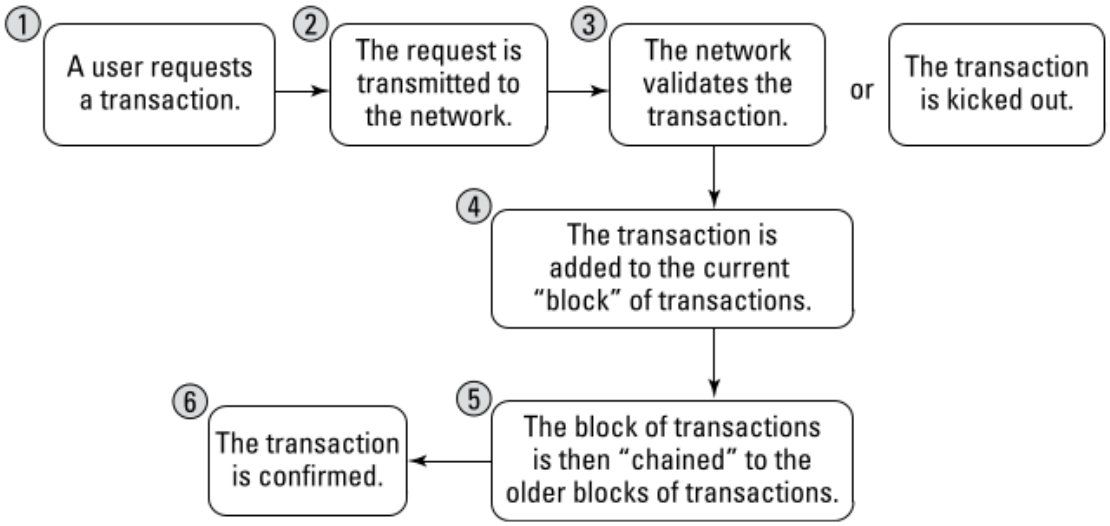
2.1 Blockchain

Cryptoeconomics brings together the fields of Economics and Computer Science to study protocols governing the decentralized digital economy and applications built by combining cryptography with economic incentives (BASHIR; VERMA, 2017; MIT, 2019; TREIBLMAIER; BECK, 2019). Over this conception, a fundamental underlying technology that makes this solution feasible is the blockchain. The beginnings of blockchain go back to a white paper, written by Nakamoto (2008), that introduces a peer-to-peer version of electronic cash, called Bitcoin, that allows online payments to be sent directly between parties without going through centralized financial intermediaries. As part of the implementation of Bitcoin, Nakamoto also devised the ledger, named ad "a chain of blocks" that was was later termed as blockchain.

In its generic form, blockchain refers "to a fully distributed system for cryptographically capturing and storing a consistent, immutable, linear event log of transactions between networked actors" (RISIUS; SPOHRER, 2017). The ability to store data immutably without relying on a central authority is what makes the blockchain technology so unique (AL-SAQAF; SEIDLER, 2017). In simple terms, it is basically a database (similar to a digital ledger) in which transactions are recorded and which is simultaneously shared among all parties in a participating network (ANTE et al., 2018). Blockchains are powerful tools because they create honest systems that self-correct without the need of a third party to enforce the rules (TAPSCOTT; TAPSCOTT, 2017). They accomplish the enforcement of rules through their *consensus algorithm* (*e.g.*, Proof-of-Work, Proof-of-Stake and Proof-of-Authority) (MINGXIAO et al., 2017). In summary, consensus is the process of developing an agreement among a group of commonly mistrusting

shareholders that play the role of full noes on the network (LAURENCE, 2019). These full nodes are responsible for validating transactions that are entered into the network to be recorded as part of the ledger. According to the business purpose and blockchain type, there are different strategies to reach consensus in a network. Figure 2 overviews the concept of how blockchains come to agreement.

Figura 2 – How blockchains work



Fonte**:** (LAURENCE, 2019).

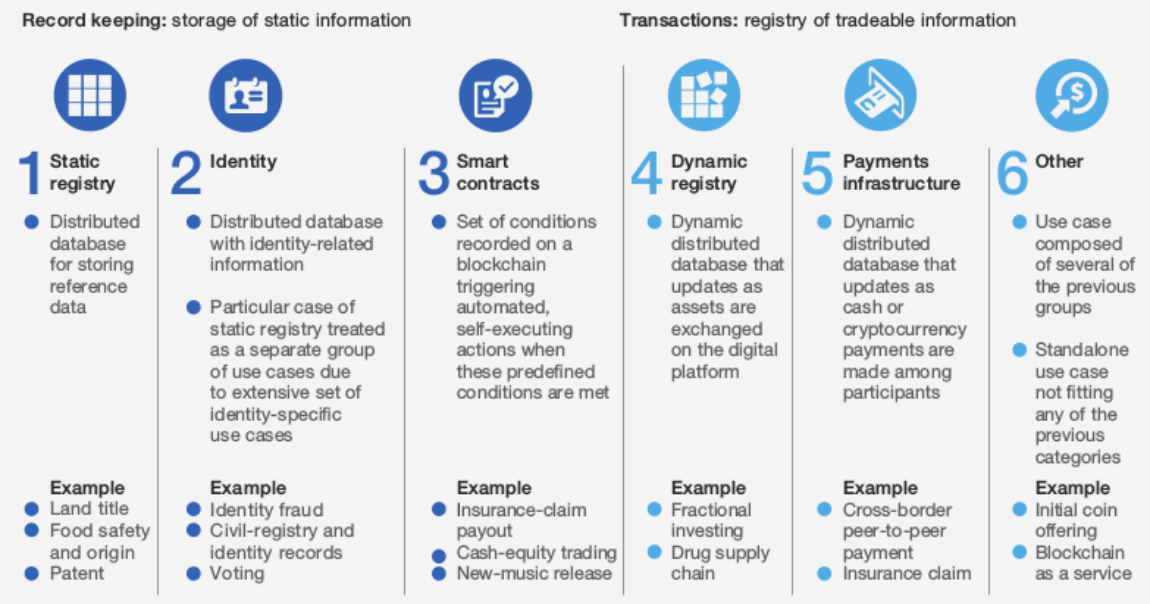
Moreover, different types or categories of blockchain have emerged aiming to deal with distinct business needs. Analogous to the cloud computing, there are *public blockchains* (such as Bitcoin) that everyone can access and update, there are *private blockchains* (*e.g.*, Ripple) in which just a limited group within an organization is able to access and update, and, finally, there is a third kind, a *consortium of blockchains* (for example, R3 Consortium) that are used in collaboration with others (BAMBARA; ALLEN, 2018). As one can expect, the decentralised digital network protocols whose govern these different types of blockchain are characterised by a complex interplay between stakeholders (*e.g.,* token holders, network validators, developers, government regulators, and media). Hence, a proper blockchain governance is urgent to balance the interests of each of these stakeholders and ensure the success of the network (ALLEN; BERG, 2020). Pelt et al. (2021) define blockchain governance as a "means of achieving the direction, control, and coordination of stakeholders within the context of a given blockchain project to which they jointly contribute". In this sense, Ølnes et al. (2017) highlight a distinction between governance *by* the blockchain, and governance

of the blockchain. Firstly, governance *by* the blockchain refers to the use of blockchain technology to more efficiently govern and coordinate existing actions and behavior. Secondly, governance *of* the blockchain describes the development, adaptation and maintenance of the blockchain technology itself.

Despite being initially developed as the main authentication and verification technology behind the Bitcoin (NAKAMOTO, 2008), blockchain as a technology has gained much more attention beyond the purpose of financial transactions, approaching smart property, internet of things, supply chain management, healthcare, ownership and royalty distribution, and decentralized autonomous organizations (WÜST; GERVAIS, 2018). In this regard, Zhao et al. (2016) discusses three generations of blockchains, where Blockchain 1.0 refers to digital currency, Blockchain 2.0 to digital finance (also known as Decentralized Finance or DeFi), and Blockchain 3.0 to digital society.

Nowiński e Kozma (2017) state that value creation through blockchain technology occurs in several ways. First, it is via building transaction-related trust through authenticating assets which are subjects of the transaction. Secondly, by means of decreasing costs via eliminating previously necessary intermediaries. Thirdly, via improving operational efficiency, for example by means of shortening settlement times, which can boost the demand for products, decrease processing costs and generate savings which can be shared with customers'. To bring some clarity to the variety of blockchain applications, Carson et al. (2018) structured blockchain use cases into six categories (see Figure 3) across its two fundamental functions: record keeping (storage of static information) and transacting (registry of tradeable information). As we can notice, it is of particular importance to some firms consider how their BMs may be disrupted by growing blockchain applications. Further, pilot projects are currently underway in several industries including the use of blockchain to track the transport of goods inside of an industrial supply chain; use of smart contracts to enable secure, faster, and less expensive real estate transactions; and use of blockchain to enable consumers to send funds abroad without incurring delays or high exchange fees. It is worth mentioning that Cryptoeconomics as a payment infrastructure is only one of the several applications that blockchain may support, but it is also considered one of the most promising ones (TAPSCOTT; TAPSCOTT, 2016).

Figura 3 – Six distinct categories of blockchain use cases addressing two major needs



Fonte: (CARSON et al., 2018).

2.2 Cryptoeconomics

On one side, the cryptography is what makes the blockchain secure, since it guarantees to securely transmit data so that only intended recipients can make use of it. On the other side, the economics is what motivates people to participate and add value in the network. As one can notice, the market triggered by Cryptoeconomics is strongly shaped by the behavioral economics (VOSHMGIR; ZARGHAM, 2020). A crucial feature to enable this social paradigm is the mechanism design (otherwise called incentive design). Originated in the Economics, the mechanism design "is the science of designing rules of a game to achieve a specific outcome, even though each participant may be self-interested" (PHELPS et al., 2010). In other words, we start by defining desirable outcomes and work backwards to create a game that incentivizes players towards those outcomes (RATLIFF et al., 2019). Cryptoeconomics can program human behavior through incentive design and solve a range of problems (KIM; CHUNG, 2019). In addition to the blockchain governance, consensus mechanisms and tokens are essential components to design these systems.

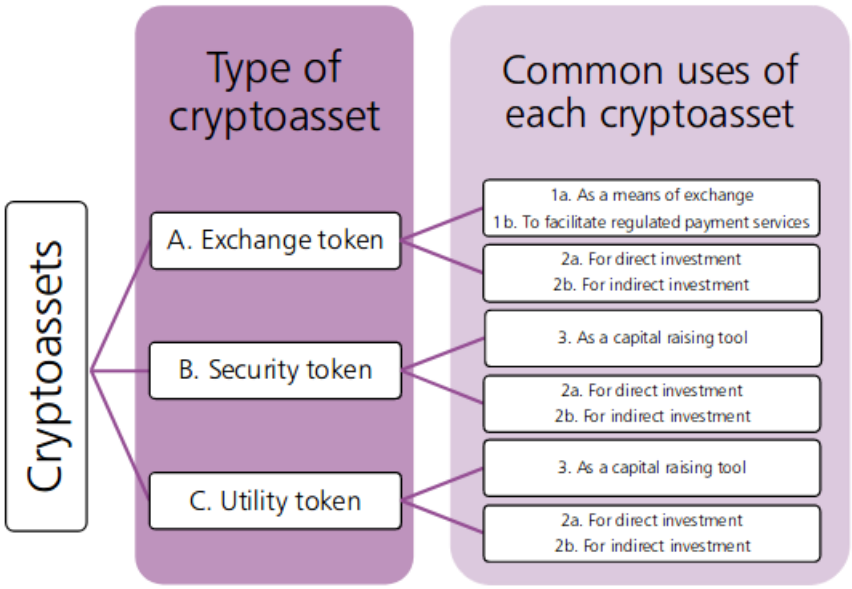
The decentralization and immutability features of the blockchain make it the perfect platform to store information (RISIUS; SPOHRER, 2017). It is important to notice that peer-to-peer does not eliminate the need for trust, it simply provides trust without relying on a centralized network (IANSITI; LAKHANI, 2017). The accountability

in a distributed network is transferred to a network of independent entities instead of a trusted third-party (BUCHWALTER, 2018). It is clear the development of consensus mechanisms is required to ensure that all entities in the network agree upon a consistent global state and to check that only the valid information is added (ANTE et al., 2018). As we previously introduced, consensus algorithms work every moment when the blockchain decides what data should be regarded as genuine and stored in the blockchain (JUN, 2018). After understanding the vital role of consensus mechanisms, we may present another equally important tool responsible for driving the participants' behavior towards solutions enabled by Cryptoeconomics: the tokens.

Tokens are defined as exchangeable goods (tangible or intangible assets) within the decentralized networks, *i.e.*, blockchains (CONLEY et al., 2017; LAUSEN, 2019). Blockchains may employ *tokenized* transactions digitally represented by cryptoassets. The definition of a cryptoasset is far from globally uniform and we have therefore opted to follow Blandin et al. (2019), in which conceptualize cryptoassets as an umbrella term to refer to private assets (represented by tokens) that rely on cryptography and blockchain to control the creation of additional value units and to verify transactions. In other words, a cryptoasset is a cryptographically secure digital representation of value or obligations created using distributed ledger technology that can be transferred, stored or traded in electronic format (BRADDICK et al., 2018).

Differently from most of the people usually assume, serving as a means of exchange (or currency) is only one type of cryptoasset. According to international regulators, one of the main criteria for classifying tokens is functional (INOZEMTSEV, 2020). Then, following the U.S. Securities and Exchange Commission (CLAYTON, 2017), Swiss Financial Market Supervisory Authority (LUX; MATHYS, 2018), UK Cryptoasset Taskforce (BRADDICK et al., 2018), Italian Regulatory Approach to Crypto Assets (CARRIÈRE, 2019), Basel Committee (BASEL, 2019) reports, we could identify three major types of cryptoassets (as depicted in Figure 4), they are: a) *exchange token*, b) *security token* and c) *utility token*. It is worth to notice that this classification may not cover all cryptoassets that cannot be classified under either of these three categories thus far remain largely off regulators' radars (BLANDIN et al., 2019). Indeed, cryptoassets are extremely diverse and can represent any promise made between two persons offering a mixture of the above features dependent on the intention of the issuer (LAUSEN, 2019).

Figura 4 – Categories of cryptoassets



Fonte**:** (BRADDICK et al., 2018).

The first type, *exchange tokens*, are synonymous with cryptocurrencies and are used as a means of exchange, functioning as a decentralised tool to enable the buying and selling of goods and services, or to facilitate payment services (BRADDICK et al., 2018; BASEL, 2019). In summary, a cryptocurrency do not possess physical characteristics and is a general-purpose commodity whose purpose is to provide a store of asset value (MOMTAZ, 2018). Cryptocurrencies may be explored as a distinct asset investment that supplementing traditional portfolios can lead to significant outperformance in risk-adjusted returns (KRUECKEBERG; SCHOLZ, 2018). However, due to their relatively lawless and unregulated nature, cryptocurrencies are under constant misconceptions and threats (CHOHAN, 2018), including money laundering (MÖSER et al., 2013) and price manipulation (GANDAL et al., 2018). Multiple authors (GANDAL; HALABURDA, 2014; COCCO et al., 2017) emphasize that cryptocurrencies may have a large long-term effect on both currency and payments systems, but these currencies are currently in their infancy and there are unanswered questions about their viability.

Since the release of the pioneer cryptocurrency, Bitcoin (NAKAMOTO, 2008), in January 2009, thousands of alternative cryptocurrencies (also known as altcoins) with several purposes have been developed. Currently, there are around 8400 cryptocurrencies covering multiple sectors (agriculture, art, charity, entertainment, healthcare, etc) and a total market capitalization of approximately U$ 1.4 trillion (COINMARKETCAP,

2021). Interesting to notice that, amongst this myriad of cryptocurrencies, there is in one hand a niche of privacy coins that seeks to be as anonymous as possible (*e.g.*, Monero and Zcash) and, on the other hand, stable coins that are tied to the value of another (typically fiat) currency (*e.g.*, Tether and Gemini) (PENNY, 2018).

Indeed, several companies are already accepting bitcoin as a means of exchange, such as Subway, Bloomberg and Wikipedia (CHOKUN, 2018). For example, Microsoft already provides a brief tutorial teaching how to use bitcoin in its marketplace (MICROSOFT, 2018). Contrasting to the traditional means of exchange (credit card, fiat money, etc), one can point out some benefits of bitcoin usage listed from its official website, for instance: its public design which nobody owns or controls and everyone can take part; the peer-to-peer technology to operate with no central authority or banks; worldwide payments and low processing fees (BITCOIN, 2019). As another appealing phenomenon emerging from this scenario, solidarity finance organizations are also embracing cryptocurrencies aiming to improve their scalability without risking their social mission (DINIZ et al., 2018).

In addition, the *security tokens* (otherwise called asset tokens) are a class of cryptoassets that represents tangible or intangible assets such as participations in real physical underlying's, companies, or earnings streams, or an entitlement to dividends or interest payments (LUX; MATHYS, 2018). In terms of their economic function, these tokens may provide rights such as ownership, repayment of money, or entitlement to a share in future profits, being analogous to equities, bonds or derivatives (BRADDICK et al., 2018; CLAYTON, 2017). Therefore, *security tokens* are essentially equity shares that are recorded on a blockchain, which reduces transaction costs while still being subject to securities law since it creates a record of ownership (HOWELL et al., 2018). One of the main arguments supporting the *security tokens* prominence is the fact that they may derive value from an external and tradable asset (tangible or intangible). Because these tokens are deemed a security, they are subject to federal securities and regulations (PRESTON, 2017). More recently, a novel way of crowdfunding investment called Security Token Offering (STO) has been attracting attention due to its capability to possibly overcome some regulatory issues. In STO, companies sell tokenized traditional financial instruments, like, for example, equity where tokenholders receive rights on a firm future profits (ANTE; FIEDLER, 2019).

Indeed, it has been argued that tokenization could radically improve the

efficiency of transaction processing by removing the layers of bureaucracy created by centralization (COMPLEXITYLABS, 2018). For instance, Tokit platform allows Content Creators of any kind to create their own *tokenized* economies, by representing their creative projects through security tokens (TOKIT, 2019). This new "token economy" offers the potential for a more efficient and fair financial world by fractioning ownership and cost reduction as well as greatly reducing the friction involved in the creation, buying, and selling of securities (LAURENT et al., 2018; CARRIÈRE, 2019). Another representative example is the Maecenas project, which claims to fully democratize access to fine art investment (MAECENAS, 2019). According to them, by tokenizing art, the platform converts million-dollar artworks into smaller financial units (tokens) that can be bought and sought by anyone globally through a transparent crypto-exchange. By tokenizing assets, a new secondary market could emerge and tokens can be accessed to a broader base of traders, thereby increasing both liquidity and value from the underlying asset (LAURENT et al., 2018).

Finally, the *utility tokens* (also called service tokens) can be redeemed by investors for access to a specific product or service once developed (BRADDICK et al., 2018; CLAYTON, 2017). While the *security tokens* can be interpreted as a stock of a company, the utility token is used to pay for the provided service (BUCHWALTER, 2018). The similarity between *utility token* and *security token* is that both are useless outside their native environment and, consequently, are dependent on a specific platform (BASEL, 2019). The *utility token* can be seen as a ticket to watch a sports event in a stadium whereas, a *security token* represents ownership of the stadium where the sport event takes place (BUCHWALTER, 2018).

Utility tokens have been subject of discussion regarding its use for Initial Coin Offering (ICO) and as incentive systems (VENTURES, 2019). ICO's can be defined as "as open calls for funding promoted by organizations, companies, and entrepreneurs to raise money through cryptocurrencies, in exchange for a token that can be sold on the Internet or used in the future to obtain products or services and, at times, profits" (ADHAMI et al., 2018). ICO's are essentially crowdfunding mechanisms that usually allocates utility tokens instead of shares to the early investors in a business (MOMTAZ, 2018; MORKUNAS et al., 2019). Benefits of ICO's are that they provide entrepreneurs with rapid liquidity, reduce transaction costs, and create customer commitment (HOWELL et al., 2018). Filecoin and Tezos projects raised more than US$ 200 million in their

respective ICO's, for example. However, as the regulations around this cryptoasset are still being set in place, it offers the chance to engage in market manipulation activities that would be considered illegal (BHEEMAIAH; COLLOMB, 2018).

Between January 2014 and June 2018, ICO's raised over $18 billion and at least 15 individual ICO's have raised more than $100 million (HOWELL et al., 2018). However, a number of ICO's failed to achieve the desired purposes due to fragile economic models (KIM; CHUNG, 2019). On one hand, ICO's are considered as a disruptive mechanism for financing entrepreneurial ventures (CATALINI; GANS, 2018). On the other hand, since most of the proposed services are not built yet, currently, several tokens have been used for speculation (LIPUSCH, 2018) and facing serious issues with regulatory agencies. With this surge in popularity, analysts have increasingly voiced concerns about fraud and the possibility of a dangerous bubble in the ICO. (PRESTON, 2017). These social concerns are good examples of which Fligstein (1996) claimed as social stability and politician participation as influences to the market. Supporting this argument, Momtaz (2018) has investigated that ICO investors' are more attracted to relatively loyal Chief Executive Officer (CEO). As he concluded, "investors require two-thirds lower ICO underpricing as an incentive to participate in an ICO when loyal CEOs are in charge and are still willing to invest significantly higher amounts".

Given the feature of being context-specific, *utility tokens* have been strongly approached as a component to compose incentive systems. For instance, Steemit was designed through an innovative BM that incentivizes users who post content that gets multiple thumbs up from the platforms' participants, and/or truthfully vote on the quality of other people's posts (STEEM, 2017). As another meaningful example, solar producers are rewarded with SolarCoin for every megawatt hour of energy produced (SOLARCOIN, 2019). We also notice the incentive platform recently launched by PayPal that rewards with internal tokens their employees that participate in innovation-related programs and contributing ideas (BERMAN, 2018). These PayPal's tokens are redeemable for more than 100 "experiences" offered on their marketplace, including poker tournaments with a couple of their vice presidents and morning martial arts with the CEO (MACHEEL, 2018). Companies like Neo and Binance have been incentivizing and paying their employees in their own tokens as an alternative to equities (YANG, 2018).

Another recent trending phenomenon and promising BM based on *utility tokens* is the one encompassed by the crypto-collectibles. A crypto-collectible is a cryp-

tographically unique, non-fungible digital asset. Non-fungible token represent unique physical or digital assets on a blockchain by guaranteeing asset scarcity and individuality (RENNIE et al., 2019). As such, non-fungible token facilitate asset provenance or tracking and verify asset ownership or authenticity. Then, unlike cryptocurrencies, which require all tokens to be identical, each crypto-collectible token is unique or limited in quantity and are are not interchangeable. A pioneer in this segment was the CryptoKitties (a game centered around collectible virtual cats), being up to this moment the most-used smart contract in the history of Ethereum blockchain, outside of exchanges (CRYPTOKITTIES, 2018).

Considering all the aforementioned discussion, we may highlight the potential for BMI and disruption in Cryptoeconomics market as promising. The advent of cryptoassets has sparked many innovative BMs with sizable valuations of their own, along with new forms of peer-to-peer economic activity (BLANDIN et al., 2019).

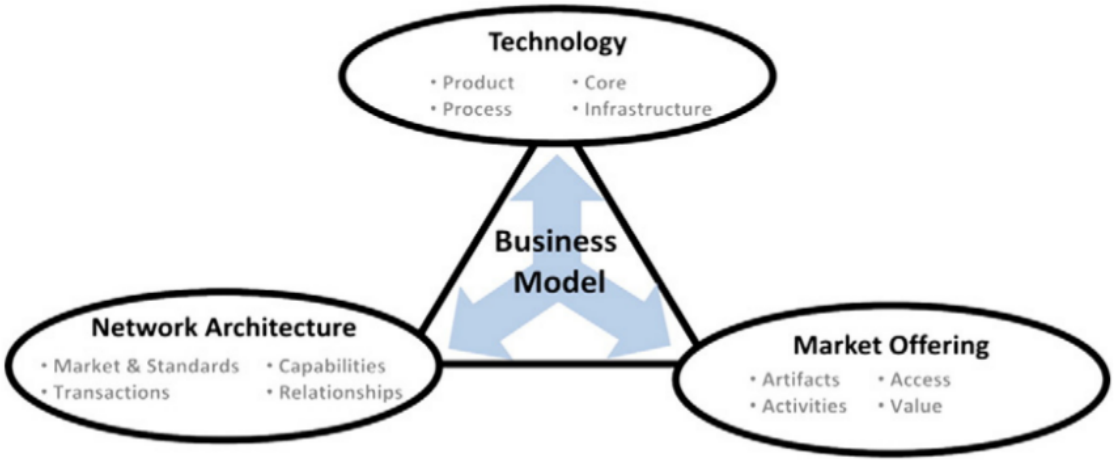
2.3 Business Model Innovation

Research on Business Model (BM) has seen extensive attention both from practitioners and academics over the last decade, in particular, due to i) the advent of the Internet (ZOTT et al., 2011) and ii) the priority of many companies for competitive advantage through the development of new products and services (BASHIR; VERMA, 2017). In fact, the notion of BMs is several decades old, since they have emerged as an important means for firms to “commercialize new ideas and technologies” (CHESBROUGH, 2010). However, only more recently the BM has been investigated as a potential unit of innovation (FOSS; SAEBI, 2017).

Drawing on extant business literature, Mason e Spring (2011) identify *technology*, *market offering* and *network architecture* as the three core elements of BMs. As depicted in Figure 5, these elements represent a way of framing what the BM should include and what the business needs to manage. Initially, the *technology* can be understood as the usage and knowledge of tools, techniques, systems, methods of organisations or material products that make up the product/service offering, its delivery and management (KREMER, 1993). The *market offering* concerns the nature of the producer-user interaction, rather than any essential feature of a particular product or service (ARAUJO, 2007). Finally, the *network architecture* encompasses the configuration

of buyers and suppliers that make the market offering possible. From this understanding, we assume BMs as generative and continuously emerging systems, characterised by structure and dynamics which can provide can provide a shared understanding of routinized action as embedded in collective cognitive and symbolic structures of shared knowledge (MASON; PALO, 2012). In this context, Amit e Zott (2012) argue that innovations to improve processes and product are often expensive and time-consuming, thus requiring a considerable upfront investment. Aiming to avoid such risks, more companies now are turning toward Business Model Innovation (BMI) as an alternative or complement to product or process innovation.

Figura 5 – Business model elements



Fonte: (MASON; SPRING, 2011).

According to Khanagha et al. (2014), BMI "can range from incremental changes in individual components of BMs, extension of the existing BM, introduction of parallel BMs, right through to disruption of the business model, which may potentially entail replacing the existing model with a fundamentally different one". Following this perspective, BMI represents "designed, novel, non-trivial changes to the key elements of a firm's business model and/or the architecture linking these elements" (FOSS; SAEBI, 2017). Foss e Saebi (2018) highlight that the BM and BMI constructs are fundamentally about the architecture of the firm's value creation, delivery and capture mechanism. In other words, the essence of a BM relies on i) the manner by which the enterprise delivers value to customers', ii) entices customers' to pay for value, and iii) converts those payments to profit (TEECE, 2010).

Therefore, every company has a series of activities, from procuring raw materials to satisfying the final consumer, which will yield a new product or service

in such a way that there is net value created throughout the various activities (CHESBROUGH, 2007). Hence, we may assume value creation as a means to create a business value from the needs of the customer which comes from the desire to use the value (BOWMAN; AMBROSINI, 2000). From this perspective, Priem (2007) claims that value creation involves innovation that establishes or increases the consumer's valuation of the benefits of consumption (i.e., use value). Furthermore, the *locus* of value creation is no longer perceived to reside within firm boundaries but value is considered to be co-created among various actors within the networked market towards a service dominant logic (GUMMESSON et al., 2010; VARGO; LUSCH, 2004; CAMARA et al., 2018). The greater the total value created through the innovative BM, and the greater a company's bargaining power, the greater the amount of value that the company can appropriate (AMIT; ZOTT, 2012).

Moreover, to drive future efforts of value creation, firms must assess their ability to effectively deliver value to customers' that will increase and repeat in scale in the future (CHAMBERS; PATROCÍNIO, 2012). The concept of value delivery is mainly addressed as the process of the floating value in a value network (DAEYOUP; JAEYOUNG, 2015). In this regard, Teece (2010) states that value delivery refers to outlines of the architecture of revenue costs and profit associated with the business enterprise delivering that value. Complementing this one, Johnson et al. (2008) summarize value delivery through the design and conscious configuration of key resources and key processes within a firm.

However, when a new idea is launched, it needs to be supported by a value capture strategy if it is to have a chance of being more than a passing fad (TEECE; LINDEN, 2017). Since a BM defines the way a company generates value (value creation), it has also to define how to capture some of this value as profit (value capture) (TEECE, 2010). Bowman e Ambrosini (2000) argue that value capture, that is the realization of exchange value, is determined by the bargaining relationships between buyers and sellers. In such a way, value capture is especially pertinent to entrepreneurs requiring sufficient generation of revenues to support firm survival, as well as managers of established firms seeking financial sustainability of strategic business units to promote company expansion (CHAMBERS; PATROCÍNIO, 2012).

Encompassing these considerations of value creation, value delivery, and value capture, the value proposition is clearly described as an aggregation of benefits,

in the form of products or services, offered by a firm to its customers' (OSTERWALDER; PIGNEUR, 2010). Maglio e Spohrer (2013) propose that value proposition can be viewed as a request from one service system entity to others to run a procedure or an algorithm and, consequently, defines the pattern of shared access to resources among stakeholders over time. Thus, we may conclude that the core object of BM is to make profits harvesting business value from what it creates in the markets (DAEYOUP; JAEYOUNG, 2015).

In emerging markets, competing BMs are a primary source of disruption and innovation that significantly influences market structure and preferences (JOHNSON et al., 2008; HOLLOWAY; SEBASTIAO, 2010). A new BM creates new options for applying and exploiting knowledge and technology in different ways than competitors do, providing a platform for internal innovations (SOUTO, 2015). BMI from technology trends occurs concurrently across a sector's markets, its upstream and downstream industries and thus, eventually, its overall architecture (GAMBARDELLA; MCGAHAN, 2010). Therefore, BMI may have more important strategic implications than other forms of innovation, in that a better BM will beat a better idea or technology (CHESBROUGH, 2010).

Björkdahl e Holmén (2013) observe that a BMI is often contrasted with a product or service innovation which consists of implementation of a product or service that is a significant improvement or is new to the firm or to the world with respect to its characteristics or intended uses. They state that a BMI does not discover a new product or service; however, it may redefine an existing product or service, how it is delivered to a customer and/or how the firm profits from the customer offering. The benefits linked with BMI beyond any doubt outstrip any other form of innovation (SNIHUR; ZOTT, 2013; SCHALLMO; BRECHT, 2010).

An innovative BM can either create a new market or allow a company to create and exploit new opportunities in existing markets (FOSS; SAEBI, 2018). As defined by Johnson et al. (2008) and Massa e Tucci (2013), BMs may be a source of disruption in the form of i) newly formed organizations (Business Model Design) or ii) through the reconfiguration of existing BMs (Business Model Reconfiguration). In this sense, Mason e Spring (2011) suggest that firms, business networks and markets form embedded systems within which multiple overlapping BMs can be considered as constituent parts. BMs are recognized therefore as having the power to act or at least

shape or frame the actions of others (MASON; PALO, 2012).

Thus, in order to achieve competitive advantage, technological innovation often goes along with BMI, which may also lead to the creation of a new industry (TEECE, 2010). Holloway e Sebastiao (2010) highlight that BMs are a key dimension in developing and analyzing entrepreneurial strategy in emerging markets. They reinforce that, while the BM literature effectively explains how existing market conditions influence BM development and implementation, it does not seem to account for situations where a new BM actually influences market conditions. Based on the previous assumptions, an increasingly popular view of emerging markets is they are socially constructed through market practices (FLIGSTEIN; DAUTER, 2007; KJELLBERG et al., 2015).

2.4 The Social Construction of the Market

Rather than viewing experiences from a firm to customer perspective, that is, a dyadic and largely unidirectional view, we assume a practice-based approach that enables a broader, dynamic, and multi-party perspective of understanding (MCCOLL-KENNEDY et al., 2015). Over the past decades, there has been a growing interest in practice within the social sciences as an ambition to explain patterns of human (inter)action as interwoven practices anchored in habit, routine, shared understandings, and embodied skills (BOURDIEU, 1992; CERTEAU; MAYOL, 1998). In essence, practices are temporally unfolding and spatially dispersed activities which are linked together by interactions as nexuses of sayings and doings (SCHATZKI, 2005). The crucial point is that practices are made by and through their routine reproduction and recursive ordering (GIDDENS, 1984). As one can see, this so-called *Practice Turn* (CETINA et al., 2005) emphasized the import of studying practice, for example work on science in action (LATOUR, 1987), Technologies-in-Practice (ORLIKOWSKI, 2000), and strategy research (WHITTINGTON, 2006).

In summary, Practice theory is a purpose-oriented theory of action where individuals influence other individuals, and who are in turn are influenced by others in an evolving ecosystem (LATOUR, 2005). The practices are viewed as connections, sustained by an ongoing series of relationships in actions – that is, connections in actions (GHERARDI, 2012). Rather than viewing the social world as external to human agents, this approach views it as being produced and reproduced through everyday

actions (RUSSO-SPENA; MELE, 2016; SCHATZKI, 2005; GOMES et al., 2020). In this regard, the role of objects and technology in such a theory is almost at the same level as individuals, that is the consumer agency is present together with the 'object agency' (PACE et al., 2017). Therefore, central to practices is the notion that different actors will experience different realities, based on how they see the world, including their role (MCCOLL-KENNEDY et al., 2015).

This practice-based theorization allow us to shift and embrace the focus to activities, actors, objects, and resources involved in the sociomaterial and cultural practices in which innovating takes place (IPIRANGA; AGUIAR, 2014; ORLIKOWSKI, 2000). Nicolini (2012) states that the "practice idiom is an ontological choice, a recognition of the primacy of practice in social matters, as well as the adoption of the idea that practices (in one way or another) are fundamental to the production, reproduction, and transformation of social and organizational matters". Hence, by recognizing that practice-connecting relationships reach beyond the boundaries of individual organizations to communities, scholars are moving away from a structural conception of networks (the question of open/close disappears) to focus on interactions and connections in action (GHERARDI, 2019).

The recent wider academic interest in practice has also made inroads into marketing discourse by taking an interest in how marketing actions, including those bridging supply and demand, contribute to shape markets (ARAUJO; KJELLBERG, 2009). Hence, inspired by sociological approaches developed to study the production of science and technology (LATOUR, 1987) and, in particular, to the use of sociology of translation (CALLON et al., 2002; WÆRAAS; NIELSEN, 2016), this perspective ontologically stress the emergent and plastic character of reality by arguing that markets are practical outcomes of organizing efforts (KJELLBERG; HELGESSON, 2007b; ARAUJO et al., 2010). Following the seminal publication of The Laws of the Markets (CALLON, 1998b), the practice-oriented methodology has become the most influential approach on the continuous construction of markets (ARAUJO; KJELLBERG, 2009).

As formally defined by Venkatesh et al. (2006), a market is "a set of institutions and actors located in a physical or virtual space where marketing-related transactions and activities take place". In addition, according to Araujo et al. (2010), (a) markets are practical outcomes; (b) marketing knowledge is performative; (c) market exchanges require framing; and (d) market agents are hybrid collectives. Complementing these

ones, Çalışkan e Callon (2009) conceptualize markets as sociotechnical arrangements or assemblages (agencements) which have three major characteristics that have to be properly interpreted:

- Markets organize the conception, production and circulation of goods, as well as the voluntary transfer of some sorts of property rights attached to them;
- A market is an arrangement of heterogeneous constituents that deploys the following features: rules and conventions; technical devices; metrological systems; logistical infrastructures; texts, discourses and narratives (*e.g.*, on the pros and cons of competition); technical and scientific knowledge (including social scientific methods), as well as the competencies, capabilities and skills embodied in living beings;
- Markets delimit and construct a space of confrontation and power struggles. Multiple contradictory definitions and valuations of goods as well as agents oppose one another in markets until the terms of the transaction are peacefully determined by pricing mechanism.

This social embedded perspective of markets fits very well with the idea that “markets are not universal, self-contained entities, but rather take on distinct discursive forms and material practices across various social contexts and over time” (SHETH; SISODIA, 2006). In the light of this understanding, markets are thus seen as entities of constant change, unstable in nature and shaped by multiple calculative agencies (CALLON et al., 2002; KJELLBERG; HELGESSON, 2006). As underlined by Samuels (2011), “markets are socially constructed, neither given and transcendental nor natural but organized to promote some interests rather than others; which interests and how they are chosen and structured, are issues to be determined”. This view implies that the locus of value creation moves beyond the borders of the firm, thus being co-created with a multitude of stakeholders in the market (NENONEN et al., 2019b). Furthermore, Nenonen e Storbacka (2018a) claim that a poor view of markets impoverishes strategy from every angle and makes strategy reactive and defeatist because markets are allegedly “given”, fixed and unfathomable. According to them, there are some fundamental differences in the poor view(s) of markets and the rich, systemic view. As we notice in Figure 6, these differences also translate to serious differences in firms’ strategies, measures of success, and types of innovations pursued by these firms.

Figura 6 – The poor, restricted view of markets versus the rich, systemic view

Poor, restricted view		Rich, systemic view
Markets defined around industries and/or products.	**Definition of markets**	Markets defined as complex adaptive systems.
Suppliers and customers in a value chain.	**Market structure**	A system of market actors (organizations, individuals) with interactions fostering value creation.
Exchange value: the value that is extracted by the supplier when selling a product.	**Value focus**	Use-value: the value that is created when a product is used in the customer's value creating process.
The market is external to the company. Markets are given and their development is deterministic.	**Market versus firm**	The market system is an outcome of actions by market actors. Markets are plastic and malleable.
A company's job is to adapt to the market, i.e., opportunities are precursors of strategy.	**Market opportunities**	A company can influence market development, i.e., opportunities are created by strategy.
Company level competitive strategy – how the company positions itself against competitors.	**Role of strategy**	System-level value-creating strategy – how the company supports the value creation of customers and other actors in the system.
To find sustainable competitive advantage.	**Ultimate goal**	Continuous renewal (as competitive advantage is always transient).
Product market share. Shareholder value.	**Key measurement of success**	Stakeholder/shared value.
Technological and product innovations	**Innovation**	+ business model innovation, management innovation, and market innovation.

Fonte**:** (NENONEN; STORBACKA, 2018a).

Thus, markets pose as complex adaptive system of exchange for the creation of value, which includes use value to consumers, subsume industries and add multiple layers of designable elements (NENONEN; STORBACKA, 2018b). Embracing this argument, Callon (1998a) rejects the notion that markets are spontaneous creations, populated by self-interested agents whose make-up is calculative by nature, and which are aptly described by neoclassical economics. Rather than obeying ordinary laws of cause and effect, markets constantly evolve from both emergence and deliberate design, being able to be constructed and reconstructed (NENONEN; STORBACKA, 2018a). As one can notice, markets are subject to varying objectives as well, from shareholder wealth, to market growth, to social stability, to quality of life, and to politician participation (FLIGSTEIN, 1996). Hence, the market change happens in a constantly shifting balance between deliberate design efforts by various organizations and spontaneous emergent developments (NENONEN et al., 2019a).

In this work we draw on (NENONEN et al., 2019a) who define Market Shaping as "a purposive process by a focal firm to (1) discover the value potential of linking intra- and inter-[actor] resources in novel ways, (2) trigger changes in various market characteristics to enable the formation of new resource linkages, and (3) mobilize

relevant [actors] to free up extant resources for new uses". In summary, the aim of market shaping is to enhance the value creation and value realization for actors within a market system (NENONEN et al., 2019b). Market shaping strategies acknowledge therefore that much of firm performance, both turnover growth and profitability, are explained by the markets where a firm operates (NENONEN; STORBACKA, 2018a).

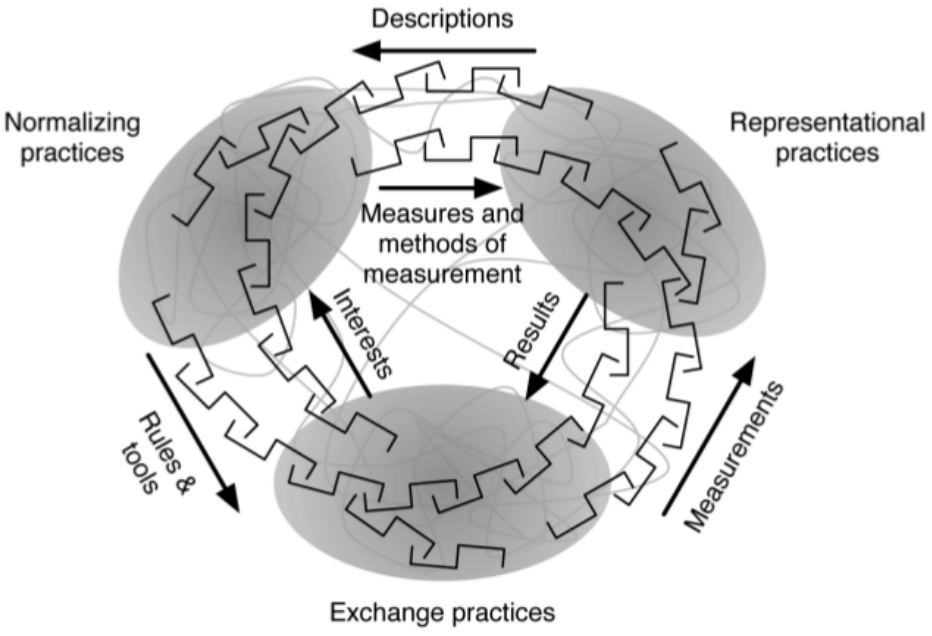
In market shaping, a broad range of technological, exchange-related and institutional activities are deployed by the main actor in the process to influence and shape a target market, including active and conscious choices (KINDSTRÖM et al., 2018). The argument is that firms continuously shape markets as much as markets reshape firms (TEECE, 2010). Thus, markets are constructed through a range of practices involving different forms of expertise and material devices (KJELLBERG et al., 2012). A crucial point in this direction is that practices are made by and through their routine reproduction and their recursive ordering (GIDDENS, 1984). Thus, market shaping activities cover a broad of practices: some have an operational firm-oriented focus, such as in individual selling situations, while others have a strategic, long-term and network-oriented focus, such as the changing of market norms and the way business is done in a particular market (KINDSTRÖM et al., 2018; MELE; RUSSO-SPENA, 2015). By attending to market practices we can i) offer an enhanced and richer characterization of what it is being shaped through market practices and ii) discover how is a certain market being shaped (KJELLBERG; HELGESSON, 2007a).

Based on the broad conception of market practices as "all activities that contribute to constitute markets" (KJELLBERG; HELGESSON, 2006), Kjellberg e Helgesson (2007b) have worked abductively to elaborate a threefold conceptual model that can account for the practical shaping of markets. Firstly, *exchange practices* ("the things I do") gather what might seem to be the most straightforward of market practices; it refers to the concrete activities related to the consummation of individual economic exchanges. Second, *representational practices* ("how I see the world") include activities that contribute to depict markets and/or how they work. Finally, *normalizing practices* ("how I interact with others") was devised to account for activities that contribute to establish guidelines for how a market should be (re)shaped or work according to some (group of) actor(s). As raised by Chakrabarti et al. (2013), this market-as-practice approach provides an understanding of the reality as an emerging phenomenon based on circular interactions between structure and processes within the network. In so doing,

this way of approaching markets shifts the attention from epistemology (how the world is understood) to ontology (how the world is being made) (MACLARAN, 2009).

As depicted in Figure 7, the link between the tree above types of practices to constitute markets are made through processes of translation. The concept of translation denotes a basic social process by which something (such as a token, rule, product, technique, truth, or idea) spreads across time and space (LATOUR et al., 1999). With a strong philosophical positioning in Actor-Network Theory (CALLON, 1984; LATOUR, 1987), the term translation in our analysis relates to *movement*, but it can also mean *displacement* (the removal of something by someone or something else that takes their place) (CHAKRABARTI et al., 2013). According to Callon (1980), translation is a process of "creating convergences and homologies by relating things that were previously different". A central feature of this model is the view of entities as practical outcomes, some of the more important ones being buyers, sellers and the objects exchanged (KJELLBERG; HELGESSON, 2007a). Kjellberg e Helgesson (2006) claim that by attending to the chains of translations that link market practices, it can be perceived differences in scale emerge as part of the shaping of markets. Hence, the relative intensity of the three types of practices, the links between them and the degree to which the involved actors overlap across activities may offer a way of probing into differences in the ongoing constitution of markets (KJELLBERG; HELGESSON, 2007b).

Figura 7 – Constituting markets: possible links forged through process of translation

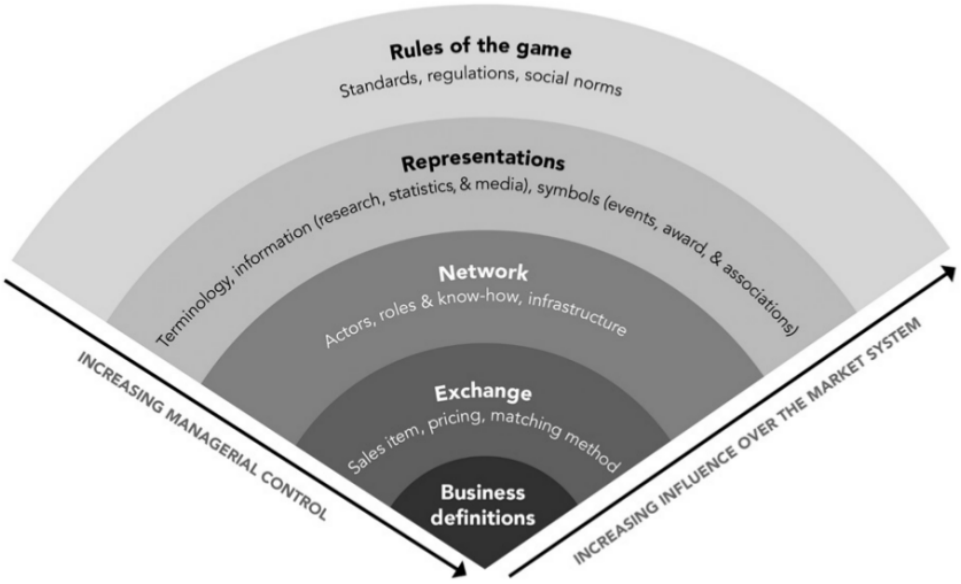


Fonte**:** (KJELLBERG; HELGESSON, 2007b).

According to Kjellberg e Helgesson (2007b), *normalizing practices* may produce *rules* that subsequently become translated into *tools* that partake in *exchange practices*, altering the agency of a seller or buyer. The implicated change in the behaviour of the seller may affect its offers to, and subsequent exchanges with, potential buyers. Based on norms concerning what to measure (*measures*) and how to measure (*methods of measurement*), *representational practices* may translate altered exchanges into *measurements* of an altered market. Such *descriptions* may in turn be used as part of efforts to alter norms, or feed back as *results* that act directly upon *exchange practice*, for example in the shape of costing calculations and evaluations of marketing activities. Finally, *interests* arising from the exchange situations may feed back into and influence normalizing practices.

Influenced by the market practices, Nenonen e Storbacka (2018a) proposed the Market Fan as a framework for illuminating and characterizing systemic markets in which can be used to create completely new market systems (for instance, around new-to-the-world technologies) as well as to improve existing market systems. According to them, the Fan looks beyond the blinders of the seller buyer duo of the standard view to see the duo as part of a larger system of actors co-creating value. As one can see in Figure 8, there are five layers nested around the focal firm trying to influence its market. The closer the layers are to the center, the more managerial control the firm has over the design elements.

Figura 8 – The market fan: illuminating the systemic markets



Fonte**:** (NENONEN; STORBACKA, 2018a).

As defined by Nenonen e Storbacka (2018a), the layers of Market Fan are: (1) the core: the *business definition* that the focal firm is using when acting in and perceiving a market; (2) the *exchange process* by which the focal firm defines its product or services, their prices and finds customers; (3) the *network* that supports the exchange process and customers' use practices; (4) the *representations* that are used to symbolize the market; and (5) the *rules* of the game that guide all interactions in the market. In particular, we may notice the presence of exchange, representational and normalizing practices (KJELLBERG; HELGESSON, 2007b) in the exchange, representations and rules of the game, respectively. As we may notice in the Figure 8, there are a set of *designable elements* for each one of the layers that the focal firm can try to manage or influence (NENONEN; STORBACKA, 2018a). In the *exchange* layer, for example, the firm must decide exactly i) what product or service (sales item) it is offering, ii) agree on a pricing logic, and how do sellers and buyers find each other (matching method).

However, the particular setting or configuration of specific elements of the Fan at a given time in a particular market provides only a snapshot of the system (NENONEN; STORBACKA, 2018a). In other words, market shaping implies purposive actions by a focal firm to change market characteristics by re-designing the content of exchange, and/or re-configuring the network of stakeholders involved, and/or re-forming the institutions that govern all stakeholders' behaviors (NENONEN et al., 2019b). This connectivity between actors (with bodies that perform activities and minds that shape performances), agency (the power they have to shape action), knowledge and understanding (what actors think they should do) can be understood as the practices that form structures of action (MASON; SPRING, 2011). According to Kindström et al. (2018), market shaping activities have their effect at three different levels of influence. In the *system level*, we account for which norms and regulations set the boundaries and rules for an entire market (EDVARDSSON et al., 2014). The *market offer level* explain how buyers and sellers organize market activities that facilitate inter-actions centered on the exchange object by means of "exchange mechanisms" (ULKUNIEMI et al., 2015). Finally, the *technology level* fulfills a role as a functional base for the shaping of single and composite activities, and the creation of useful market offers. Ultimately, this acknowledged broad comprehension of market shaping should help us to study the Cryptoeconomics as a "marketing in the making" instead of a "ready-made one".

3 RESEARCH FRAMING

This research intends to understand what market shaping has to teach about Cryptoeconomics and, ultimately, how it may posit as a valuable resource for fostering BMI. To this end, the fundamental assumption is therefore to investigate how Cryptoeconomics has been practiced by forward-looking firms to shape new markets through BMI. Then, informed by Gherardi (2009), we assume that innovating can be regarded as a "texture of practices": a set of practices resting on other practices that emerge as connections in action involving both human and nonhuman elements. This ontological perception drive us to a constructivism's relativism which assumes "multiple, apprehendable, and sometimes conflicting social realities that are the products of human intellects, but change as their constructors become more informed and sophisticated" (GUBA et al., 1994). Constructivism, as a paradigm guiding the practice of research and evaluation, emphasizes the central influence of multiple perspectives, contextual factors, and value systems in the development of knowledge (LINCOLN; GUBA, 2013).

Hence, our research process shifts the focus onto the awareness and practices performed by individuals/objects engaged in forward-looking firms whose devise Cryptoeconomics as a strategic tool for value proposition. By applying this concept of practical accomplishment and by challenging traditional analytical categories, we adopt an epistemology of practices (CORRADI et al., 2010; GHERARDI, 2016; SCHATZKI, 2005). Seeing practices as the active integration of meanings, skills, and objects means that these relationships are never stable, that is: they co-evolve over time (ARAUJO et al., 2010). This constructionist position allows us to surround the object of research as the activities, actors, objects, and resources fluided as fragments of data through socio-material and cultural practices enacted by the firms towards BMI and market shaping (MELE; RUSSO-SPENA, 2017; LATOUR, 2005). Inspired by Lincoln e Guba (2013), our aim here is understanding and reconstruction of the constructions that people initially hold, driving toward consensus but still open to new and enriched interpretations as information and sophistication improve.

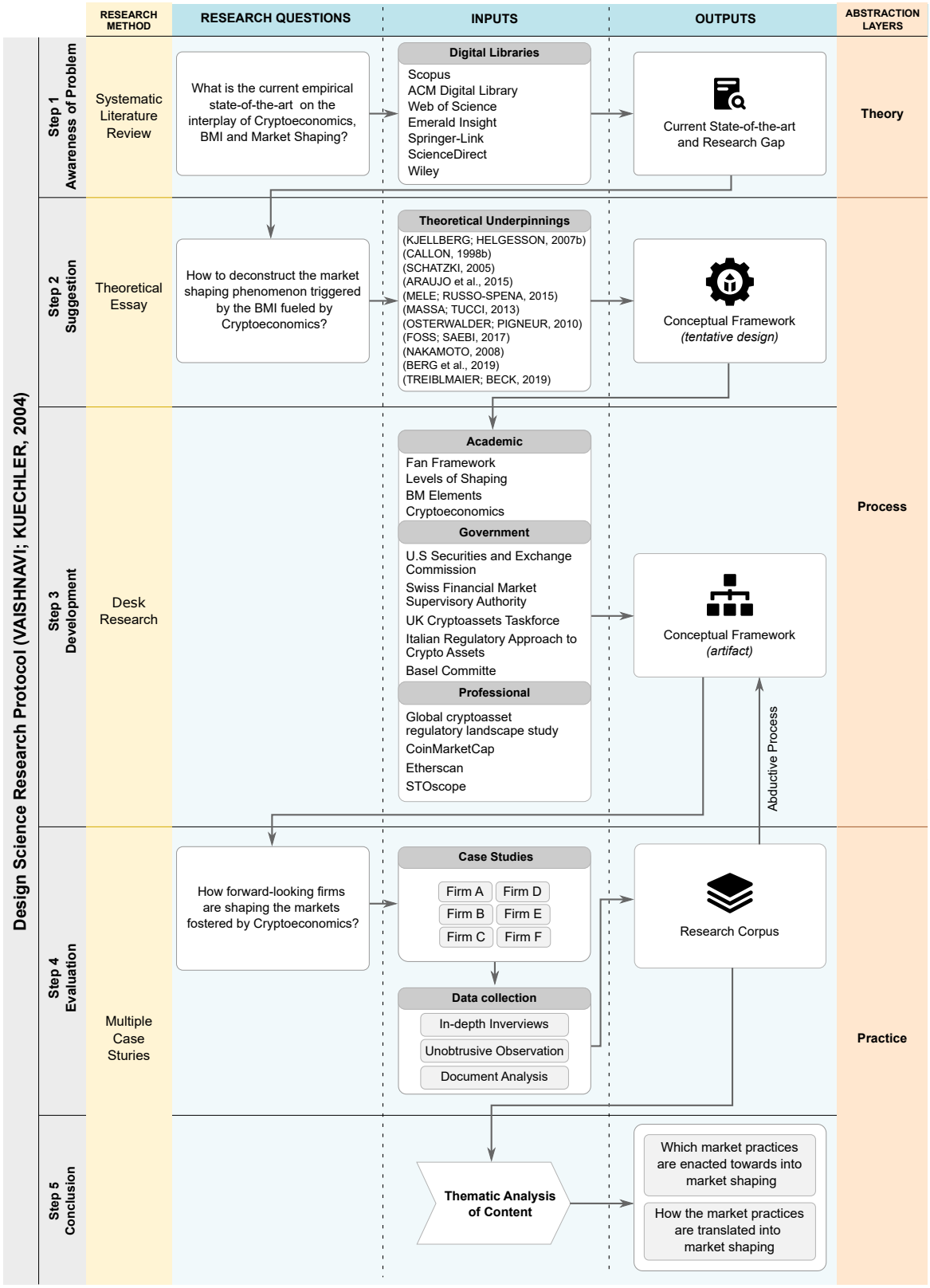
As stated by Gherardi (2012), practices are not simply empirical objects; they also represent a social constructionist conception that does not distinguish between the production of knowledge and construction of the object of knowledge (between ontology and epistemology). Although constructivism depends upon interpretation from the

researchers' part, it allows for data to surface in a natural manner (EASTERBY-SMITH et al., 2012; RUSSO-SPENA; MELE, 2016). This ontological approach enables us to stress the emergent and plastic character of reality as well as capture meaning about market shaping and BMI as it occurs, forging a broad perspective out of the interaction between various actors, positions, and interpretations (BELL et al., 2018; KJELLBERG; HELGESSON, 2007b). Therefore, properties of the world are seen as outcomes of a continuous recursive process involving materially heterogeneous entities (LAW, 1994). For this reason, we approach the concept of market practices to depict all activities that contribute to constitute markets and, ultimately, empower us to understand the market *in the making*, rather than as ready-made (KJELLBERG; HELGESSON, 2006).

Because a key goal of this research is to gain an extensive and in-depth description of the social phenomenon under investigation, we assume this research as exploratory in nature (CRESWELL; CRESWELL, 2017; YIN, 2017). Given this decision, we also opt for an abductive approach aiming to take advantage of both the systematic character of the theoretical world and the systematic character of the empirical world (DUBOIS; GADDE, 2002). In this regard, we engaged in tacking back and forth between empirical analysis and literature, and as dimensions, properties, concepts, and themes emerged, used literature to refine the articulation of emergent categorizations and their relationships (GIOIA et al., 2013; NENONEN et al., 2019b). Therefore, our main concern is related to interlink concepts that together provide a comprehensive understanding of the phenomenon under investigation (JABAREEN, 2009), rather than confirmation of existing theory.

Addressing social constructivism facilitates the production of ideas and gradually moves towards a comprehensive picture through the method of triangulation (EASTERBY-SMITH et al., 2012). In this view, we assume that social constructions can be elicited and refined only through interaction *between* and *among* investigator and respondents (GUBA et al., 1994). Hence, we designed a multi-method research enlightened by a qualitative scope due to the capability of analyzing the social phenom under investigation through holistic lens (FLICK, 2018). As depicted in Figure 9, complementary studies were conducted following a five-step Design Science Research (DSR) protocol (VAISHNAVI; KUECHLER, 2004). They are systematically described in the following by covering different levels of abstraction – from theory to process and, finally, to practice.

Figura 9 – Research approach



Fonte**:** Elaborated by the author.

Firstly, we must understand the problem from a broader perspective during the **Awareness of Problem** step (SIMON, 2019). To formalize this evidence and problem characterization, we accomplished a Systematic Literature Review (SLR) (FINK,

2019) that enabled us to comprehensively analyze the state-of-the-art concerning the interplay between Cryptoeconomics, BMI and Market Shaping. From this acquired theoretical knowledge, we also highlighted open questions and remaining challenges of current research, including the one tackled by this dissertation. For details about the method followed and the findings of Step 1, refer to Chapter 5.

Immediately following the awareness of a problem is the phase of **Suggestion**. Considering the research question tackled by this work, confirmed through the SLR, we must articulate the theoretical assumptions and concepts proposed to investigate it. As output of Step 2, we obtained a *tentative design* as initial representations of the proposed artifact (MANSON, 2006; DRESCH et al., 2015). From the variety of artifacts that can be developed based on design theories, we decided by a conceptual framework because it is especially useful for a discipline that generally lacks and defies attempts to develop theory (PALVIA et al., 2003). Hence, we initially conducted a theoretical essay (ARAÚJO et al., 2019) aiming to portray our major assumptions and a novel conceptual and practice-based framework (our *tentative design*) that seeks to contribute to the more reflective approach towards clarifying critical elements for raising the Cryptoeconomics as an opportunity for BMI, including the ongoing market practices that shape its structure. Our idea with the proposal of this conceptual framework is to generate new interpretations and understanding drawing on the fundamental theories that encompass our study (JABAREEN, 2009).

In the **Development** step, we advanced our *tentative design* following the *circumscription process*, which is a logical method that assumes that every fragment of knowledge is valid only in certain situations (MCCARTHY, 1980; DRESCH et al., 2015). As a means of ensuring we are extracting maximum insight and making our framework adherent for the requirements of the problem, we conducted a Desk Research (VERSCHUREN et al., 2010) by addressing multiple secondary data, including academic, government and professional sources. This process was of particular importance because we are dealing with constructs that were not previously articulated in the light of the Cryptoeconomics. This learning allowed us to analyze and incorporate other conceptual assumptions (*e.g.*, the Market Fan (NENONEN; STORBACKA, 2018a), Shaping Levels (KINDSTRÖM et al., 2018), and BM Elements (MASON; SPRING, 2011)) into the artifact and make it trustworthy to guide our empirical evaluation. As one can notice, our conceptual framework was designed to provide an interpretative

approach to social reality instead only a causal/analytical setting (JABAREEN, 2009). All details concerning to the research design adopted in this step as well as the framework are properly described in Chapter 5.

Once constructed, our artifact was critically appraised in order to validate it and illustrate how it works in practice. Illuminated by Mele e Russo-Spena (2017), our **Evaluation** process comprised multiple case studies drawing on our proposed framework aiming to to observe, understand, and report the ways in which practices are accomplished and describe the territories of actions, meanings, knowing, and artifacts within which they unfold. According to Yin (2017), conducting multiple case studies may be helpful in arguing possible differences or similarities in several contexts. Then, we employed the principles of data triangulation by means of in-depth interviews, unobtrusive observation, and document analysis on the selected case studies to become immersed in their activities and uncover market practices of the firms towards increasing plausibility and richness of the findings. This interactionist research design is of remarkable importance because it matches with our socio-constructionist perspective of market creation in which mechanisms are usually qualified, in the first place, as social (ÇALIŞKAN; CALLON, 2009). Chapter 6 describes the case studies as well as the adopted data collection procedures to the empirical evaluation.

The final step of the design cycle is the **Conclusion**, in which we analyze, consolidate, and properly record the results. As suggested by Vaishnavi e Kuechler (2004), the researcher must reflect on what was learned and what did not work to solve the problem. For this reason, we followed the well-established conventions of data condensation, data display, and conclusion drawing/verification proposed by Miles et al. (1994). Addressing Mead et al. (1967) and Wittgenstein (2009) lead, we used a pragmatic-interactionist approach to interpret our qualitative data. We accomplished our methodological approach by following the guidelines suggested by Boyce e Neale (2006), Burles e Bally (2018), and Bowen et al. (2009) for in-depth interviews, unobtrusive observation, and document analysis, respectively. Supplementing these ones, we carried out the Thematic Content of Analysis (BARDIN, 1979) technique on the research corpus emerged from the variety of source evidences that we collected. We made this choice due to the capability of enabling the emergence of categories from the data and revealing insightful structures (SMITH et al., 1992). These findings were also addressed by means of an abductive process (DUBOIS; GADDE, 2002)

towards the conceptual framework refinement and a better integrated perspective on the phenomenon. Furthermore, we opted to delve into the methodological rigor of our constructivist inquiry by means of a multicriteria assessment in terms of trustworthiness and authenticity (SHANNON; HAMBACHER, 2014; GUBA et al., 1994; LINCOLN, 2007). All findings and analysis from this step may be found in Chapter 6.

4 SYSTEMATIZING THE PROBLEM AWARENESS

This chapter presents the methodology and findings concerning the **Awareness of Problem** step that we highlighted in Chapter 3. In Section 4.1, we detail the research design addressed in the Systematic Literature Review. In Section 4.2, we address the results and analysis, including the current state-of-the-art, open research questions, and remaining challenges. Section 4.3 brings the final remarks of the chapter.

4.1 Research Design

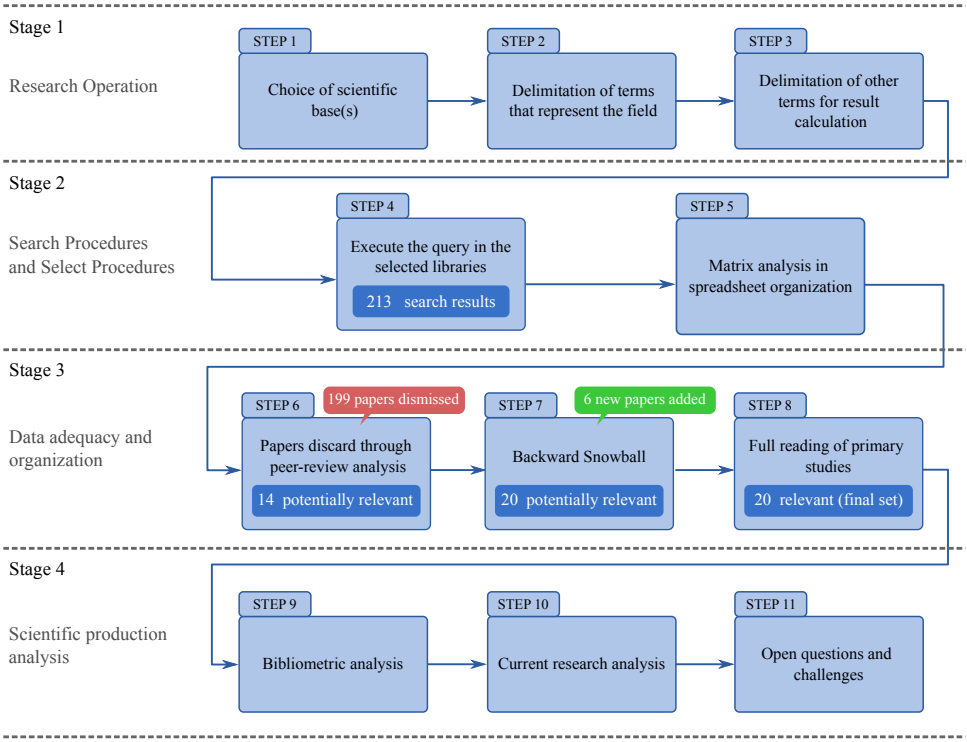
According to Fink (2019), Systematic Literature Review (SLR) is a systematic, explicit, and reproducible method for identifying, evaluating, and synthesizing the existing body of completed and recorded work produced by researchers, scholars, and practitioners. For this in-depth study, we adapted the protocol suggested by Prado et al. (2016): 1) Research operation; 2) Search procedures (filters) and selection procedures (database); 3) Data adequacy and organization; and 4) Scientific production analysis. Firstly, we retrieved the scientific studies from the Scopus[1], ACM Digital Library[2], Web of Science[3], Emerald Insight[4], SpringerLink[5], ScienceDirect[6], and Wiley[7] digital libraries. These libraries were selected because they index relevant venues for this study, support searches using Boolean expression, and provide access to complete texts. The search was performed in May 2020. We have considered the following search expression: (“`Business Model`” OR “`Business Model Innovation`” OR “`BMI`”) AND (“`Cryptoeconomics`” OR “`Cryptocurrency`” OR “`Crypto-currency`” OR “`Crypt currency`” OR “`Tokens`” OR “`Cryptoasset`” OR “`Cryptofinance`” OR “`Crypt finance`” OR “`Digital currency`”) AND (“`Market Shaping`” OR “`Construction of Markets`” OR “`Market Making`”).

We considered for selection papers that explicitly approach Cryptoeconomics, and whose research method is empirical-based. For the papers, we examined the ones that are published in peer-reviewed venues, including workshops, conferences, and

[1] <https://www.elsevier.com/solutions/scopus>
[2] <https://dl.acm.org/>
[3] <https://www.periodicos.capes.gov.br/>
[4] <https://www.emerald.com/insight/>
[5] <https://link.springer.com/>
[6] <https://www.sciencedirect.com/>
[7] <https://onlinelibrary.wiley.com/>

journals. We decided to exclude the following types of papers: (1) papers without full text availability (including the abstract), (2) papers where the language was not English, (3) papers that were duplicates, (4) papers that were not primary studies (editorials, mapping studies, summaries of keynotes, tutorials), (5) papers previously published to the Bitcoin whitepaper (NAKAMOTO, 2008), (6) papers that bring some subject related to Cryptoeconomics, but do not contribute to the BM perspective (cryptography studies, econometric researches, purely blockchain technology, computational performance experiments, etc).

Figura 10 – 4-stage approach to search and select the primary sources



Fonte: Adapted from (PRADO et al., 2016).

Figure 10 summarizes our 4-stage approach to search and select the primary sources. Initially, after running the query on the digital libraries systems, our resulting sample comprised 213 candidate papers (1 from Scopus, 1 from ACM, 18 from Emerald, 30 from SpringerLink, 185 from ScienceDirect, and 8 from Wiley). The list of 213 papers was divided into three groups of articles to be screened by three independent researchers. Each of these three groups of 71 papers was respectively and independently validated by the other two researchers. The screening process was done by looking at the title, introduction, method, results, and all the paper whenever necessary. In a consensus meeting, the authors agreed and performed the exclusion

procedures resulting in 14 papers. From this list of articles, we conducted a single step snowballing sampling (JALALI; WOHLIN, 2012), and 6 new papers (1 from ACM, 1 from International Society for Professional Innovation Management, 1 from ScienceDirect, 2 IEEE Xplore, and 1 AIS eLibrary) were added by following the same review protocol previously explained. As suggested by Wohlin (2014), snowballing could benefit from looking at the reference lists and citations and complementing it with a systematic way of looking at where papers are actually referenced and where papers are cited.

Regarding the reasons for excluding papers were accounted for in Table 2. Once a paper fits any exclusion criterion or did not comply with any inclusion criteria, it was excluded. For instance, 6 papers were excluded because they were duplicated. Meanwhile, from those that addressed Cryptoeconomics, 49 papers did not bring beforehand insights for BM research. It is important to note that we just considered one reason for exclusion per paper in Table 2, but one paper could actually be classified under more than one exclusion reason in the selection process.

Tabela 2 – Excluded paper and exclusion reasoning

Exclusion reason	Number of excluded papers
Papers without full text availability	0
Papers where the language was not English	0
papers that were duplicates	6
Papers that were not primary studies	108
Papers previously published to the Bitcoin whitepaper (2008)	16
Papers that do not speak of crypto in the cryptoeconomics context	62
Papers do not contribute enough to the BM perspective	49

Fonte**:** Elaborated by the author.

Finally, 20 articles were found compatible to be analyzed. We created a Google Sheets file for the data gathering to collect the required information about all papers. The spreadsheet contained the following standard data fields: primary study ID, reference, title of the paper, name of the authors, country, keywords, year of publication, type of publication (conference, workshop or journal), publication venue, source library, research analysis (qualitative, mixed-method or qualitative), research method and business context. Table 1 summarizes the 20 papers that form the primary sources of our study.

Quadro 1 – List of primary papers

Identifier	Reference	Reference	Country	Year of Publication	Type of Publication	Publication Venue	Base	Research Analysis	Research Method	Business Context
[PS1]	Wang et al.	Primary	United Kingdom	2019	Journal	International Journal of Production Economics	ScienceDirect	Qualitative	Delphi Study	Supply Chain
[PS2]	Olsen et al.	Primary	Switzerland	2018	Journal	The Journal of Risk Finance	Emerald Insight	Qualitative	Case Study	Market
[PS3]	Krafft et al.	Primary	United States of America	2018	Conference	Conference on Human Factors in Computing Systems	ACM Digital Library	Quantitative	Experimental	Market
[PS4]	Farooq et al.	Primary	Pakistan	2020	Journal	Computers & Electrical Engineering	ScienceDirect	Quantitative	Experimental	Charity
[PS5]	Raschendorfer et al.	Primary	Austria	2019	Journal	Procedia CIRP	ScienceDirect	Qualitative	Case Study	Manufacturing
[PS6]	Wilkinson et al.	Primary	Australia	2020	Journal	Energy Research & Social Science	ScienceDirect	Mixed-method	Case Study	Energy
[PS7]	Scholl et al.	Primary	United States of America	2019	Journal	Government Information Quarterly	ScienceDirect	Qualitative	Case Study	Market
[PS8]	Meland et al.	Primary	Norway	2020	Journal	Computers & Security	ScienceDirect	Qualitative	Netnography	Cybercrime
[PS9]	Fisch	Primary	Netherlands	2019	Journal	Journal of Business Venturing	ScienceDirect	Quantitative	Experimental	Market
[PS10]	Huston et al.	Primary	United Kingdom	2015	Journal	Cities	ScienceDirect	Mixed-method	Multiple Case Studies	Cities
[PS11]	Angrish et al.	Primary	United States of America	2018	Journal	Procedia Manufacturing	ScienceDirect	Quantitative	Case Study	Manufacturing
[PS12]	Sibbritt et al.	Primary	Australia	2019	Journal	Journal of Hospitality and Tourism Management	ScienceDirect	Qualitative	Interviews	Tourism
[PS13]	Singh and Kim	Primary	South Korea	2018	Journal	Computer Networks	ScienceDirect	Quantitative	Case Study	Transportation
[PS14]	Chalmers et al.	Primary	Ireland	2019	Journal	Journal of Business Research	ScienceDirect	Qualitative	Multiple Case Studies	Music
[PS15]	Jabbar and Bjørn	Backward	Denmark	2017	Conference	Conference on Human Factors in Computing Systems	ACM Digital Library	Qualitative	Etnnography	Market
[PS16]	Bunduchi et al.	Backward	United Kingdom	2018	Conference	International Society for Professional Innovation Management Conference	ISPIM	Qualitative	Case Study	Charity
[PS17]	Green and Newman	Backward	Australia	2017	Journal	Energy Policy	ScienceDirect	Quantitative	Case Study	Energy
[PS18]	Hahn et al.	Backward	United States of America	2017	Conference	IEEE Power & Energy Society Innovative Smart Grid Technologies Conference	IEEE Xplore	Quantitative	Case Study	Energy
[PS19]	Cusack and Ward	Backward	New Zealand	2018	Conference	America's Conference on Information Systems	AIS eLibrary	Qualitative	Case Study	Cybercrime
[PS20]	Yuan and Wang	Backward	China	2016	Conference	International Conference on Intelligent Transportation Systems	IEEE Xplore	Qualitative	Case Study	Transportation

Fonte: Elaborated by the author.

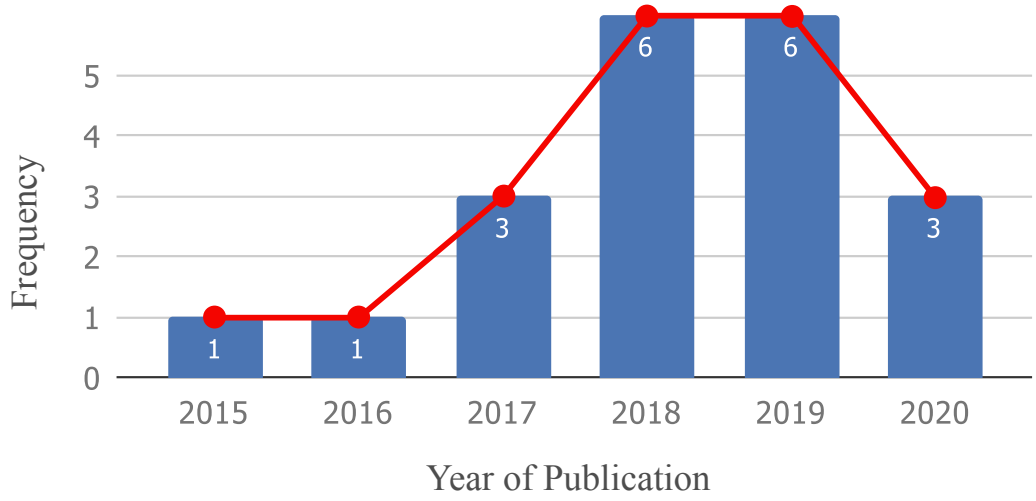
4.2 Findings and Analysis

In this section, we present our findings in two major parts. Firstly, we discuss the bibliographic results, including publication distribution per year, authors' country, publication sources, publication venues, and research method addressed by the papers. In a second moment, we discuss in depth the current state of research in terms of i) which markets segments have been covered and ii) how they have been shaped in practice from a business perspective.

4.2.1 Bibliographic Results

Figure 11 shows the distribution of the publication year of the primary papers. As one can see, the empirical evaluation and interest in the subject are very recent. Since 2015, we may notice at least one paper published, being 2018 and 2019 the years with most papers published (6) up to May 2020. The first paper identified was the one proposed by Huston et al. (2015) in the context of smart cities, while the most recent was presented by Wilkinson et al. (2020) addressing electricity trading.

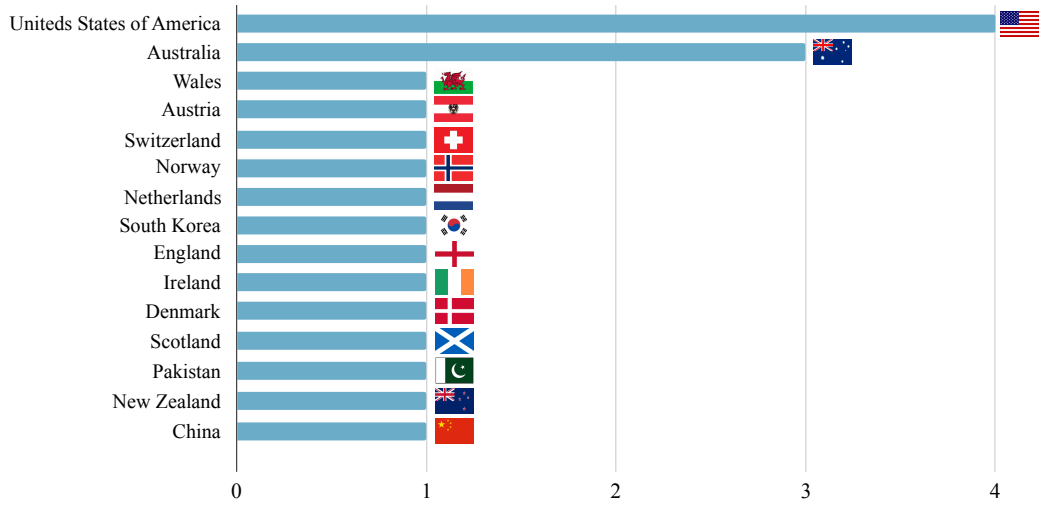
Figura 11 – Publication year of the selected primary papers



Fonte: Elaborated by the author.

The geographical distribution of the first authors' country is shown in Figure 12. For this analysis, we considered the country of the institution in which the first author belongs. The United States was the country that accounted with the highest number of papers (4), followed by Australia (3) in second place. Meanwhile, we did not noticed papers from South America and Africa continents.

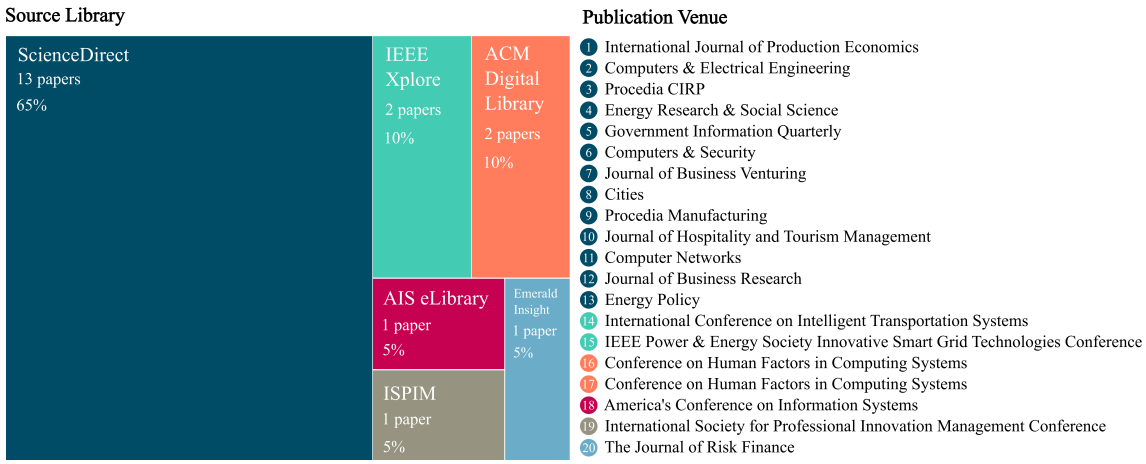
Figura 12 – First authors' countries



Fonte: Elaborated by the author.

Figure 13 depicts the papers found per digital source library (left side) and publication venue (right side). The majority of the papers were retrieved from Science Direct (65%), while AIS eLibrary (5%), Emerald Insight (5%), and ISPIM (5%) were the ones with fewer papers. Interesting to notice the variety of publication venues covering several different research areas. In addition, we also observe the presence of 19 different venues for the 20 primary studies, indicating heterogeneity of publication venues. The only repeated venue entry was the Conference on Human Factors in Computing Systems available by the ACM Digital Library.

Figura 13 – Publication sources and venues

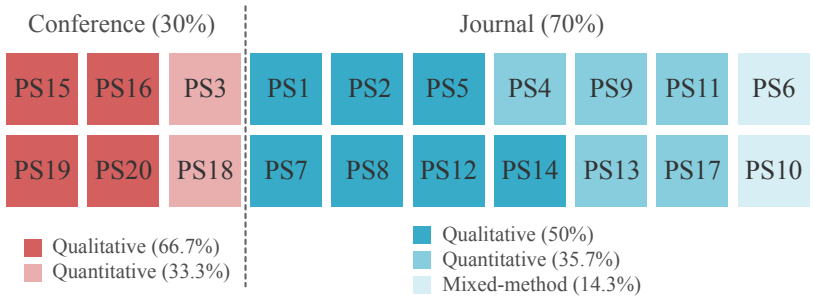


Fonte: Elaborated by the author.

Figure 14 summarizes the ratio of qualitative, quantitative, and mixed-method research by publication type. Results have shown that 70% of the papers were published in Journals, while 30% in Conferences. Out of the papers published in Journals, 50% of

them are qualitative, 35.7% are quantitative, and 14.3% are mixed-method. On the other hand, considering the Conferences, we noticed that 66.7% of the papers are qualitative, while 33.3% are quantitative. Analyzing both publication types, we may conclude the most of the papers are qualitative (35%), and only two articles (10%) are mixed-method.

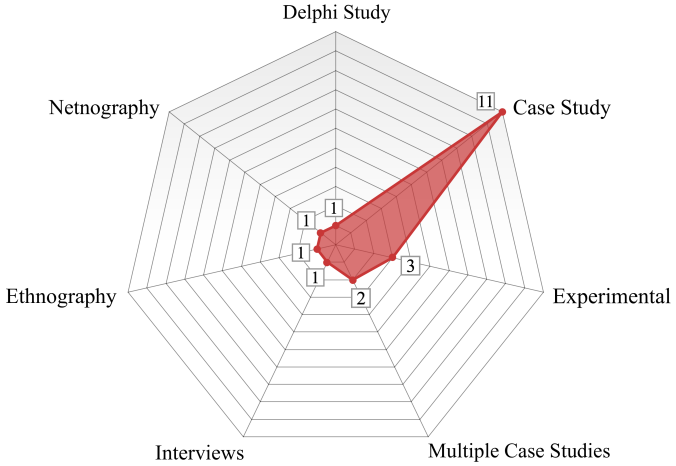
Figura 14 – Ratio of qualitative, quantitative, and mixed-method research by publication type



Fonte: Elaborated by the author.

Figure 15 reveals the primary research methods addressed by the studies. An interesting fact here is the variety of methods employed, covering both qualitative and quantitative scope. We found that most papers (55%) reported Case Studies to evidence the problem, followed by Experiments (15%) and Multiple Case Studies (10%). For the rest of the methods, we may notice two research methods predominately linked to the observation, which is Ethnography (5%) and Netnography (5%), and the other two methods based on Interviews (5%) and Delphi Study (5%). That said, it is possible to see a concentration of case studies, thus demonstrating a room available for studies exploring and delving into other research methods.

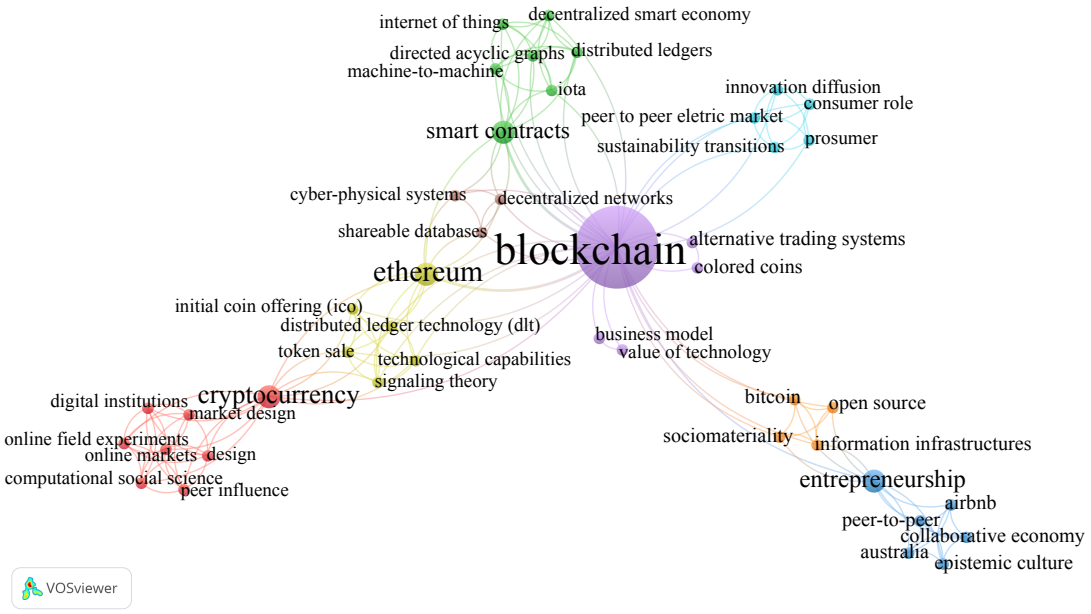
Figura 15 – Research method per publication



Fonte: Elaborated by the author.

Figure 16 shows a visual keyword network and brings a big picture of the topics addressed by the papers. A total of 75 non-repeated keywords were identified where the size of the keyword represents the number of occurrences. Blockchain was the central theme that interconnects the others. In addition, we distinguish four major groups of keywords related to Smart Contracts, Ethereum, Innovation, and Entrepreneurship. This finding suggests that the primary studies are very fit with our research aim.

Figura 16 – Keyword network analysis



Fonte**:** Elaborated by the author.

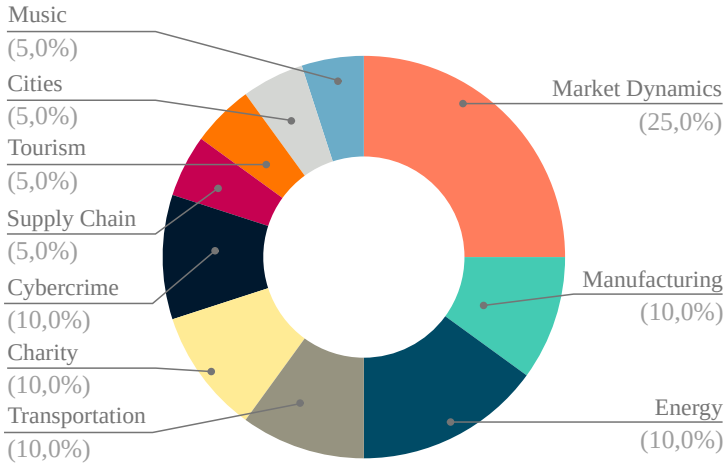
4.2.2 Current Research

Following the call of Spieth et al. (2014) towards research directions for understanding the emergent BMI phenomenon, we adopted an analysis concerned with '*explaining the business*' perspective. This guidance enables us to focus our discussion on conditions that lead to a successful recognition of opportunities and adherent reconfiguration of resources to capture market value. Our approach converges to the argument stated by Björkdahl e Holmén (2013) that "BMI cannot be understood without considering the co-evolution of the industrial ecology and firms' BMs".

As one can see in Figure 17, the results of this SLR showed different industries being addressed by the primary studies. A large portion of the research concentrates on overall issues related to market dynamics (25%). Also, we observe a

quite variety of business segments being covered: Manufacturing (10%), Energy (10%), Transportation (10%), Charity (10%), Cybercrime (10%), Supply Chain (5%), Tourism (5%), Cities (5%) and Music (5%).

Figura 17 – Business contexts addressed by the primary studies



Fonte: Elaborated by the author.

As cryptocurrencies gain popularity and credibility, marketplaces as a BM are growing in importance. Krafft et al. (2018) claim that understanding the dynamics of these markets can help to assess how viable the cryptocurrency ecosystem is and how design choices affect market behavior. More than revealing that traders were susceptible to peer influence, the authors highlighted how online market providers should be aware of the effect of design choices in individual and collective behavior in terms of social and economic impact. In another perspective, Olsen et al. (2018) presented the case of Likke, a company based in Zurich that has launched a global marketplace for all asset classes (futures and options on digital assets, crowdfunded loans for retail, private equity financing, etc.) and instruments digitized on the blockchain, including they own cryptocurrency called Lykkecoin that serves as entitlement to the shares of the company.

We also noticed two papers investigating darknet marketplaces. Firstly, Cusack e Ward (2018) have conducted an exploratory study observing the business processes and technologies associated with Ransomware BM, which is an extortion model whereby the attacker gains an advantage over the victim and then makes demands. They weighted cryptocurrencies as one of four anonymizing constructs associated with the Dark Web and, consequently, the BMs associated with it. Meland et al. (2020) investigated popular darknet markets over a period of two years using netnography. From this study, they were able to create a value chain and descriptions of the actors

involved in this economy. These discussions are important in order to comprehend which countermeasures could be adopted to overcome the cybercrime associated with cryptocurrencies.

Another insightful case is discussed by Jabbar e Bjørn (2017). They followed physical activities done by entrepreneurs working out of incubators, the financial consultant advising banks, and the CEO of a small hardware company specializing in Bitcoin Automated Teller Machines. Drawing upon ethnographic data, they explored the blockchain information infrastructure as it is manifested in various socio-technical activities.

Furthermore, Cryptoeconomics has been highlighted as a disruptive mechanism for financing entrepreneurial ventures due to the blockchain's capability of tokenizing assets (as we have introduced in the Background). In an Initial Coin Offering (ICO), for example, new ventures raise capital by selling tokens to a crowd of investors. Using a sample of 423 ICOs, Fisch (2019) has concluded that effective signaling of a venture's technological capabilities is important for attracting higher amounts of funding. This result is relevant in order to inform potential investors and ventures about how to evaluate or conduct an ICO that attracts more funding.

Additionally, Qiu et al. (2019) have conducted a SWOT analysis comparing two important players for the financial ecosystem, that is SWIFT and Ripple systems. SWIFT is a network used by financial institutions for secure cross border financial transactions or money remittance. On the other hand, Ripple tries to bypass the intermediary tiers of banks by using blockchain technology to enable cross-border remittance. Ripple issues its cryptocurrency called XPR to be the medium to allow different currencies to be converted to XPR back and forth easily. According to the authors, "new systems like Ripple will inevitably change the landscape of cross-border remittance market in the next 5 to 10 years".

However, while traditional financial and securities markets are highly regulated, cryptoassets have so far widely remained unregulated, which potentially poses significant threats to individual investors and, via money laundering, terrorist financing, and tax evasion, to society at large (BARNES et al., 2018). In this context, Scholl e Bolívar (2019) bring case of Gibraltar , near the Southern tip of the Iberian Peninsula, which has been one of the first jurisdiction worldwide to regulate cryptocurrencies providers. Their study contributes to the emerging view of smart regulation as an enabler

and protector rather than an inhibitor and obstacle in areas of rapid innovation.

Moreover, Cryptoeconomics has demonstrated the potential for revolutionizing the supply chain management. Wang et al. (2019) have interviewed supply chain experts who asserted that cryptocurrency and a cashless society might be inevitable in the future. According to some interviewees, this change would challenge governments and radically reshape the current structure of inter-organizational trade terms and cash flows. However, it is worth to notice a general reaction that cryptocurrency would not become a reality for a long time.

Regarding the manufacturing case studies, Raschendorfer et al. (2019) investigated whether IOTA, a cryptocurrency especially known for advertising itself as made for the Internet of Things, can be used effectively for Machine-to-Machine payments and communication in such a setup to-date. For this aim, they built a prototype based on a robotic artist and concluded that smart contracts are necessary for an Machine-to-Machine economy to be feasible, although some parties question their enforceability. Another manufacturing case was investigated by Angrish et al. (2018). They proposed “FabRec”, a decentralized approach to handle manufacturing information generated by various organizations. According to them, new BMs must be designed to incentivize the participation of various manufacturer stakeholders on the network, ensuring that there is no single group of entities that control the network.

The market of intelligent transportation systems has been shaping through promising opportunities for BMI. Singh e Kim (2018) suggest, for example, that a car may sell this information (violations, surveillance, etc) to other cars and earn some cryptocurrency in exchange. In this sense, they introduce a concept of intelligent vehicle trust point, which is similar to Bitcoin, for intelligent vehicles to assess how trustworthy another vehicle is. Intelligent vehicle trust point can be exchanged in return for services such as traffic information or even as a payment instrument at gas or charging stations. Yuan e Wang (2016) highlighted the case of La’zooz as a successful BM in sharing economy and social transportation. The general idea of La’zooz is to reward with a token “road miners” that contribute to the community by sharing their transportation data along the way. These tokens can be used to pay for ride-sharing and other transportation services.

Another market that has been intensively investigated is the one encompassed by the development of post-subsidy market models that could create new value

streams for prosumers, such as peer-to-peer market mode. Wilkinson et al. (2020) discussed a pioneer example of P2P electricity trading via a blockchain platform located in Australia. They considered potential increasing the use of the distribution grid infrastructure, increase adoption of renewable energy production and batteries, and ensure a secure trading platform. As another case study in the Energy sector, Hahn et al. (2017) have introduced a smart contract that enables energy producers to sell excess energy to the highest bidder through a Vickrey auction. Green e Newman (2017) stated that technology platforms are already being invented to sell excess local electricity, such as Reposit and Local Volts. Companies such as Grid Singularity, Solar Coin, and Ethereum are transacting electricity. According to the authors, “this is a distributed consensus-driven infrastructure enabling trust between counterparties”.

The smart sustainable breakthrough has also been subject to Cities’ research scope. Huston et al. (2015) articulated a putative smart and sustainable solution with institutional, project, and innovative funding components and explored mega-urban regeneration projects in the United Kingdom and Holland. As funding mechanisms, they highlighted those disruptive alternative technologies like crowdfunding and digital currencies that could revolutionize the sector.

Sibbritt et al. (2019) explore entrepreneurship in the collaborative tourism economy and, more specifically, the collaborative accommodation sector. Regarding the relation with Cryptoeconomics, the authors bring the speech of an interviewee in which declared to be “watching crypto-currency with interest [...] we are always looking at ways to evolve”. Chalmers et al. (2019), in turn, investigated an emerging community of entrepreneurs within the global music industry who are utilizing blockchain to disrupt industry incumbents, typically through offering innovative services that promise to make transactions cheaper, automated and more secure. Many of the evaluated firms used derivative innovations such as ICOs to fund ventures and mediate exchange within the platform.

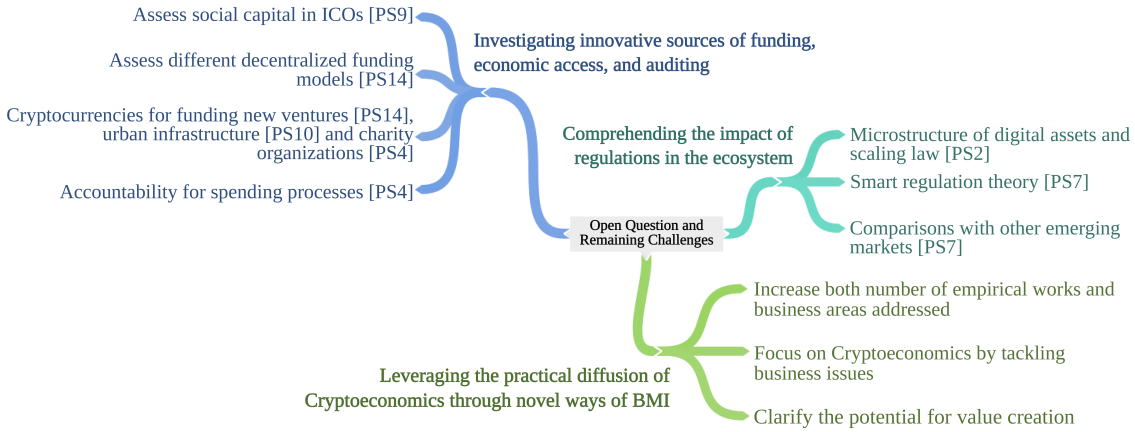
Finally, there is a number of efforts for digital transforming charity projects as well as for increasing their efficiency and transparency. In this context, Farooq et al. (2020) proposed a charity collection platform based on blockchain technology that is transparent for donors and legal authorities to conduct an audit. They covered the charity collection process using crypto wallets, ICO, economic model, and introduced CharityCoin as a digital currency. Drawing from the study of a charity retail organization,

Bunduchi et al. (2018) proposed the creation of the Oxcoin to incentivize trusted volunteers to upload items onto the online store network and to request items from other stores, thus stimulating the exchange of items between stores. Oxcoins would be accumulated by volunteers and used to either buy items in shops or as community currency.

4.2.3 Open Questions and Remaining Challenges

After carefully reading the primary studies, we were able to categorize three major open challenges pointed out by the authors that could be framed as opportunities for further BMI research. As depicted in Figure 18, the questions cover 1) investigating innovative sources of funding, economic access, and auditing, 2) comprehending the impact of regulations in the ecosystem, and 3) leveraging the practical diffusion of Cryptoeconomics through novel ways of BMI. In this section, we explore how these challenges are called into questions.

Figura 18 – Open questions and remaining challenges



Fonte: Elaborated by the author.

As we have explored in a previous section, Cryptoeconomics has transformed the way in which people raise funds for their projects. Approaching ICOs, for example, Fisch (2019) state that future research could try to operationalize human capital by drawing on founder biographies, education, or professional experience. They also mention the opportunity of trying to assess venture's social capital in ICOs by approaching network ties between different ventures or focusing on the role of advisors. Also, Chalmers et al. (2019) discussed the adoption of ICOs to fund ventures in the music industry, but also reported an overall concern with this funding model (due to

the market crash in 2018) and predicted its adoption in another form, for example as Security Token Offering (STO) or similar. Hence, future studies could assess different decentralized funding models, including the recent ones Initial Exchange Offering and DAOICO. Besides, Huston et al. (2015) featured the potential role of cryptocurrencies as an innovative funding model for urban infrastructure projects, while Farooq et al. (2020) detailed the usage for making the fundraising and spending process more efficient and transparent in charity organizations.

Furthermore, we may notice that one of the major debates that encompass Cryptoeconomics concerns its legal regulation. Since cryptoassets are an immature asset class given the lack of standardization and constant evolution (BRUMMER, 2019), we need to advance on the understanding of the empirical market microstructure of digital assets and scaling law (OLSEN et al., 2018). Meanwhile, some countries are reportedly planning to bring a law to ban cryptocurrencies, given that most ones are not backed by a public authority (SAPOVADIA, 2015). On the other hand, however, there are governments currently working on the design of a prudential treatment for crypto-assets (BLANDIN et al., 2019). The challenge for both research and practice, therefore, is to understand how to effectively regulate solutions based on crypto-assets in a way that avoids curbing the innovative nature of this technology. Scholl e Bolívar (2019) pointed out, for instance, that future research could attempt to develop smart regulation theory in the cryptocurrency. They also clarified the need of conducting comparative studies of other jurisdictions engaging in the regulation of emerging markets and innovations.

Lastly, we highlight the challenge of advancing the practical diffusion of Cryptoeconomics and its impact on business research. Despite posing as a growing research area, we need to increase both empirical and business works. Most of the current studies have been focused on the blockchain technology, but there are still many businesses and innovation issues without proper investigations. This research avenue may contribute towards clarifying the potential of crypto-assets as an innovative enabler for value creation to the organizations. Aiming to clarify possible paths to further research, we derived from our primary studies a list of open questions (see Table 2) covering different market segments. In addition, we associated them with the BMI constructs of firm's value creation, value delivery, and value capture (TEECE, 2010).

Quadro 2 – Open questions derived from the primary studies

Reference	Question	Context	Architeture of Value
[PS1]	How could cryptocurrency affect the cash flow and supply chain structure?	Supply Chain	Value Capture
[PS3]	What is the impact of design design features for marketplaces in the process of buying and selling cryptocurrencies?	Market	Value Delivery
[PS5]	How to achieve a higher degree of autonomy and efficiency with regard to the payments with between M2M prototypes through the use of cryptocurrencies?	Manufacturing	Value Capture
[PS6]	How to fulfil the specific needs of P2P market participants?	Energy	Value Delivery
[PS11]	How to combine microeconomics into the digital manufacturing application domain?	Manufacturing	Value Capture
[PS12]	How to empower collaborative economy entrepreneurs?	Tourism	Value Creation
[PS15]	How to advance the adoption of decentralized autonomous transportation systems?	Transportation	Value Creation
[PS15]	What are the opportunities concerning the development of Decentralized Autonomous Organizations (DAOs) and De centralized Autonomous System and even society (DAS)?	Transportation	Value Creation
[PS18]	How may distributed markets enable the exchange of energy in transactive environments?	Energy	Value Delivery
[PS18]	How to establish consensus and trust between transactive agents in energy distributed markets?	Energy	Value Delivery
[PS19]	How to devise effective counter measures against Ransomware-as-a-Service economy?	Cybercrime	Value Creation

Fonte**:** Elaborated by the author.

4.3 Chapter Final Remarks

For purposes of simplicity, in Section 4.2.1, we presented an overview of the current research, and, in Section 4.2.3, we highlighted open questions and remaining challenges addressed by the primary studies. Therefore, this SLR revealed a number of implications for research and practice which we discuss ahead at a higher-level perspective.

Whereas the impact of Cryptoeconomics on BMs is important, the current research predominantly focuses on aspects and economical issues. According to Jiang et al. (2020), the current research of cryptocurrency can be divided into two categories: (1) underlying technology of cryptocurrency, including blockchain technology applications,

consensus mechanism algorithms, the risk and legitimacy of cryptocurrency; (2) economic applications of cryptocurrency (price predictions, volatility, etc). However, supported by our findings, we urge to add a third category concerning the business application of cryptoassets. We claim that, despite widely discussed the variety of issues associated with the rapid growth of the cryptocurrency market (CORBET et al., 2019), research and practice are still in their infancy about altering existing and creating new BMs based on cryptoassets. Hence, we could expect rich progress towards understanding the motivation of the entrepreneurs in this context, how do they define their BMs fueled by cryptoassets, which archetypal patterns of BMs have been designed for novel ways of value creation and, finally, how this ecosystem could holistically evolve.

In addition, evidence from the reviewed primary studies indicates that crypto-assets represent enormous opportunities for BMI research development. First, because only a few business areas and industries were tackled until this moment. Second, several empirical methods remain unexplored in order to increase the coverage of the research. Third, used as a means of exchange is only one of the various solutions enabled by crypto-assets. In this regard, for example, the potential exploration of security and utility tokens has been barely investigated by scholars. As highlighted by Laurent et al. (2018), the act of tokenizing assets threatens to disrupt many industries, in particular the financial industry, and those who are not prepared to risk being left behind. Therefore, sparking the BMI research area and presenting pathways towards understanding the business around Cryptoeconomics poses as one of the major issues raised by this study.

Moreover, our investigation reveals a research gap concerning to development of empirical studies addressing Cryptoeconomics through the lens of Market Shaping. In particular, this finding appears to be appealing since recent studies have been emphasized that markets are not given and deterministic contexts, exogenous to the firm to which firms and other market actors must adapt (NENONEN et al., 2014; NENONEN; STORBACKA, 2020). Adopting this new perspective for understanding the Cryptoeconomics market dynamics could provide insightful results since forward-looking firms are increasingly viewing markets as malleable and plastic systems that can be influenced (NENONEN et al., 2019a). Our theoretical essay (ARAÚJO et al., 2019) on that issue was previously published in the XLIII Encontro da ANPAD. However, this paper was not identified as a primary study since it was not available in the source libraries

addressed by this SLR. In summary, our study articulated how Cryptoeconomics could embrace the argument that markets are not casual creations, but constructed through a range of market practices that influence and are influenced by BMs.

For practitioners, our findings also unravel that many promising studies and opportunities for the use of cryptoassets have been reported. This review clearly shows that efforts have been made to i) overcome the common sense that cryptocurrencies are associated with cybercrime, ii) unlock the whole potential of cryptoassets adoption beyond Bitcoin, and iii) proven the feasibility and benefits in adopting crypto-assets for several industries. As BM can be such a potentially powerful competitive tool, managers must be attuned to the possibility of gathering novel sources of future value for businesses as well as creating new or enhanced revenues (AMIT et al., 2010). However, due to the limited number of primary studies in this review, we consider being impossible to offer definitive and detailed advice. Rather, this SLR provides an overview of research carried out to date, which we encourage to be critically appraised by other organizations in order to identify similarities and differences between the studies reported and their situation.

Informed by Kitchenham (2004), we introduce ahead the threats to validity and the different tactics we adopted to mitigate them. As for the construct validity, our main concern was that all the relevant studies fit with our inclusion criteria. The delimitation of keywords in the search expression or an incorrect search method can not include enough relevant primary studies and, consequently, generate biased results. In this sense, there is no single or generally-recognized definition of cryptoassets at present (BASEL, 2019). Terms such as cryptocurrencies, cryptofinance, tokens, and digital currencies are used in different contexts to refer to some or all types of cryptoassets. To mitigate this threat, we conducted a pilot search to identify different terminologies related to Cryptoeconomics. Therefore, we added in the search expression all list of terms identified a priori. Moreover, considering that BMs based on cryptoassets is a quite new topic, we used several well-known scientific databases and indexers in the search protocol to find as relevant papers as possible, such as Scopus, ACM Digital Library, Web of Science, Emerald Insight, SpringerLink, ScienceDirect, and Wiley.

Aiming to reduce the bias in the selection process, we read the introduction and conclusion whenever necessary to avoid inaccuracy of data and misinterpretations of titles and abstracts. In addition, the selection process was conducted and validated by

three different researchers whose decisions in which conflicts occurred were resolved and agreed in consensus meetings. Also, we carefully defined inclusion and exclusion criteria to ensure that all selected papers were part of our specific research subject.

Regarding internal validity, we are dealing with a research topic that is still in its first steps. Thus, we obtained a limited number of papers in our final set of primary studies. This finding also reveals a lack of empirical studies and analysis covering in detail the BM perspective. However, through an in-depth reading of the works, we could derive an underlying analysis. For this reason, to reduce possible misinterpretations due to this subjective analysis of the extracted data and its synthesis, more than two researchers performed the data extraction, and many of the discussions and findings were brought to the group at this stage as well.

Finally, as for the external validity, as we are conducting an SLR, there is a possibility that this study did not have sufficient evidence from research articles, inducing to a lack of relevant data. To mitigate this threat, we also conducted a rigorous backward search which helped us to complement our study and include other relevant primary studies.

5 CONCEPTUALIZING CRYPTO-BASED MARKET SHAPING

This chapter presents the research design and results concerning the **Suggestion** and **Development** steps as highlighted in Chapter 3. In Section 5.1, we present the research protocol. In Section 5.2, we discuss our proposed practice-oriented framework. Finally, in Section 5.3, we address the final remarks of the chapter.

5.1 Research Design

As claimed by Muthukrishna e Henrich (2019), there is currently a replication crisis resulting from a lack of cumulative theoretical frameworks. The authors argue that “useful theoretical frameworks tell scientists not only what to expect, but also what not to expect. They show the interconnections between theories”. Thus, theory helps discerning how things come to be as they are and how they function (OSTERWALDER, 2004). Palvia et al. (2003) advocate for frameworks as especially useful for a discipline that lacks and defies attempts to develop theory. In this regard, we are dealing in this work with a very recent phenomenon that still faces a lack of theoretical underpinnings.

In line with the previous argues, we identified, through the SLR described in the previous chapter, a research gap about the role of BMI on the shaping of new markets around Cryptoeconomics. Therefore, we decided to articulate a theoretical essay aiming to portray the major assumptions that could lead us to the more reflective approach towards clarifying critical elements for raising the Cryptoeconomics as an opportunity for BMI, including the ongoing market practices that shape its market structure. From this initial knowledge, we further advanced by means of Desk Research aiming to gather facts and existing research by ensuring that we are extracting maximum insight and value from all existing sources (VERSCHUREN et al., 2010).

Our multiple secondary data included academic literature, market and government reports, whitepapers and official websites of Cryptoeconomics projects, and leading aggregators of news and analysis of the market. As an output of this phase and following the orientations of Miles et al. (1994), we provide a conceptual framework (the *artifact* as defined in DSR) that represents composite BMI activities involved in shaping markets around Crypetoeconomics, differently from the metaphor that emphasizes markets as pre-existing (KINDSTRÖM et al., 2018).

5.2 Conceptual Framework

This study adopts a constructionist approach, positing that markets are socially constructed human artifacts resulting from the actions and cognitive framing of the involved actors (NENONEN et al., 2017). As stated by Vargo e Lusch (2004), “markets are always in the making: markets are not; they become”. This insight helps us to open up questions about how market actors can influence the process about how they can facilitate market innovations (STORBACKA; NENONEN, 2015). From this perspective, one can see that market innovation implicitly embraces the BMI literature, since an innovative BM can either create a new market or allow a company to exploit new opportunities in existing markets (FOSS; SAEBI, 2018). Therefore, true innovation is no longer the making of novel units of output, but the design and creation of new markets (VARGO, 2009).

As clarified by Kjellberg et al. (2015), the conception of markets as socio-material networks derives that market innovation also includes the introduction of various market devices, including algorithms, BMs, performance measures, etc. This view of markets appears to us of particular importance in the context of Cryptoeconomics due to two major reasons. First, because empirical inquiries should attend to the practical interactions between different types of entities, incorporating both social and material elements (LATOUR, 1987). Second, because the market based on Cryptoeconomics is an arena embedded by an intricately relationship between technology and social interactions derived by the underlying structure composed by the blockchain, mechanism design, and token offering. Consequently, one can expect that both sides have to be properly designed in order to unlock the whole potential of Cryptoeconomics.

A socio-material construction of Cryptoeconomics market fits very well to the view of “social order” in which it postulates that actors participate in a market because exchange offers advantages to the individual participants (BECKERT, 2009). For example, when Alice sends bitcoin to Bob, it is immediately verified through a decentralized network and recorded in the blockchain. This process of verification and adding a transaction to the blockchain is called *mining*, and it is conducted by the participants (nodes) of the network (ANTONOPOULOS, 2014). But, what makes the participants invest resources (energy, time, hardware, etc) and engage in the mining process? The answer is the chance of being rewarded with bitcoins. Thus, the mining

process has both purposes of disseminating new coins in a decentralized manner as well as motivating people to provide security for the transactions (KROLL et al., 2013).

Furthermore, the design of a BM in an emerging market scenario requires interaction between collective interests and those of the entrepreneur, which in turn influences the market structure (HOLLOWAY; SEBASTIAO, 2010). Hence, focal actors can thus influence markets – both new as well as mature markets – not only by the persuasion of existing targets via such conventional marketing activities as selling and promotion but also by learning and developing their knowledge of both the market itself and the other actors within it (KJELLBERG et al., 2015), in a market shaping process. By recognizing the import of market representations and BMs in market shaping, more studies are required about how different market practices emerge and evolve (KJELLBERG et al., 2012). This focus on practice involves a consideration of material devices embodied skills and mental representations as well as the configurations in which they come together to form particular blocks (SHOVE; PANTZAR, 2005; ARAUJO; KJELLBERG, 2009). Attending to how markets are being constituted in practice allows us to appreciate the details involved in organizing markets, without reducing beforehand such phenomena (KJELLBERG; HELGESSON, 2007a).

Examining BM evolution in the emerging market context could provide a critical link between the collective actions that facilitate new markets (FLIGSTEIN, 2002). In this sense, the Cryptoeconomics has attracted attention because it enables in an unprecedented way the use of incentives to design novel solutions that have the potential of creating or shaping existing markets (BURNISKE; TATAR, 2017). By acknowledging the relevance of this market representation, we seek to contribute to a reflective and conceptual approach towards clarifying pivotal elements for raising the Cryptoeconomics as an opportunity for BMI, including the ongoing market practices that shape its structure. In this practice-oriented perspective, the unit of analysis is the field of practices that joins the individual and the collective, as well as the human and technological dimensions (MELE; RUSSO-SPENA, 2015). For this reason, we operationalized our conceptualization process following three major steps: i) formally articulate what are the conceptual elements addressed in our approach, ii) iteratively switch between empirical and theoretical findings and, from these insights, iii) design the proposed conceptual framework in order to generate new interpretations and understanding of the phenomena under study.

As one can notice, our study derives from multiple conceptual elements grounded on three major foundations, they are: Cryptoeconomics, BMI, and Market Shaping. To offer the reader a unified understanding, in Table 3 we summarize beforehand the theoretical underpinnings (in line with Chapter 2) for each one of the main conceptual elements that support our assumptions and form the theoretical structure for our conceptual framework. This articulation process was accomplished by conducting an in-depth analysis from multiple primary (derived from case studies further discussed in Chapter 6) and secondary data that enabled us to extract maximum insight value as well as orchestrate intra- and inter-connexions from extant sources. As suggested by Miles et al. (1994), setting out bins, naming them, and getting clearer about their interrelationships are useful towards a framework definition.

Therefore, from the multiple conceptual elements presented in Table 3 and following the abductive logic described in Chapter 3, we depict in Figure 19 a conceptual framework which aims to provide a comprehensive understanding of a phenomenon by deconstructing major market shaping activities triggered by BMI fueled by Cryptoeconomics. In particular, this view of a market as a shapeable system through different levels, actors, and designable elements qualify us to argue that opportunities are not precursors of strategy; rather, they are outcomes of deliberate efforts to shape markets (NENONEN; STORBACKA, 2018a). Following this argument, our framework is adherent to what Storbacka e Nenonen (2011) call “a market actor wanting to influence a market configuration”.

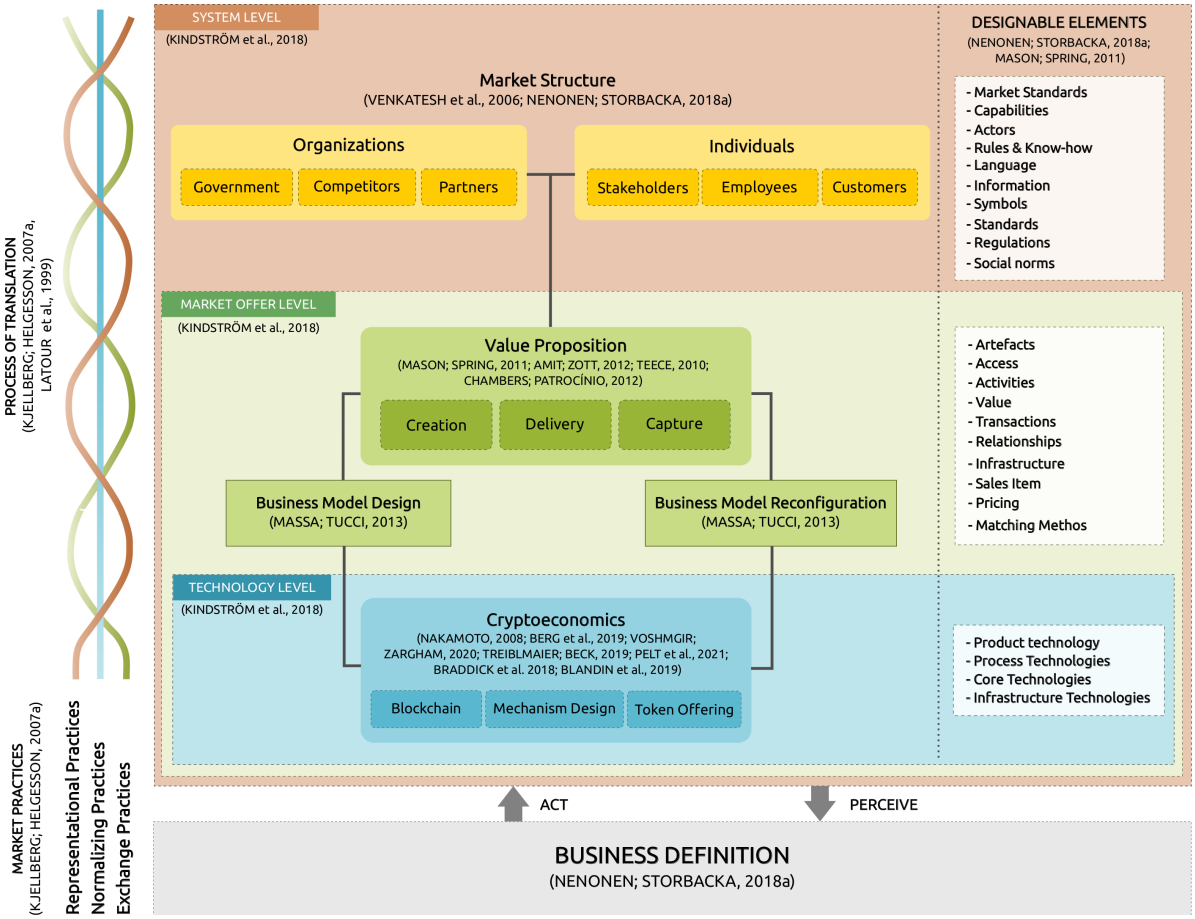
Inspired by Kindström et al. (2018), we assume that market shaping activities have their effect at different levels of influence, ranging from Technology to Market Offer and, finally, to System. As denoted by the Figure 19, we overlapped these levels to emphasize a non-linear and dynamic perspective, whereas these practices can take place and have their effect at different shaping degrees of influence, including a mutual relationship between them. The different levels of influence and associated activities should not be implemented in isolation but rather should be allowed to interact in such a way as to reinforce and build on each other: that is, synergistically (KINDSTRÖM et al., 2018). Serving as a lens to frame all the layers above, we have the Business Definition, which helps to depict the organization’s position report as well as its aspirations for the future (NENONEN; STORBACKA, 2018a).

Quadro 3 – Theoretical underpinnings

Theoretical Foundations	Conceptual Elements		Definition	Reference
Cryptoeconomics	Blockchain	Public	Does not require approval or authorization for access	(LAI; CHUEN, 2018), (XU et al., 2017), (BAMBARA; ALLEN, 2018)
		Private	Requires authentication of participant identities and authorization of participant's permission-level of access	
		Consortium	The consensus is controlled by preauthorized nodes, being public or restricted the right to read	
	Mechanism Design		The science of designing rules of a game to achieve a specific outcome, even though each participant may be self-interested	(PHELPS et al., 2010)
	Token Offering	Exchange	Synonymous with crypto currencies, functioning as a decentralized tool to enable the buying and selling of goods and services	(CLAYTON, 2017),(LUX; MATHYS, 2018), (BRADDICK et al., 2018), (LUX; MATHYS, 2018), (BRADDICK et al., 2018), (CARRIÈRE, 2019), (BASEL, 2019), (BLANDIN et al., 2019), (COINMARKETCAP, 2021), (ETHERSCAN, 2021), (STOSCOPE, 2021)
		Security	Represents tangible or intangible assets such as participations in real physical underlying's	
		Utility	Can be redeemed by investors for accessto a specific product or service once developed	
	Governance		Means of achieving the direction, control, and coordination of stakeholders within the context of a given blockchain project to which they jointly contribute	(LUX; MATHYS, 2018)
Business Model Innovation	Business Model Design		Entrepreneurial activity of creating, developing and validating a BM for a newly formed organization	(MASSA; TUCCI, 2013)
	Business Model Reconfiguration		Phenomena by which managers reconfigure organizational resources to change a BM	
	Value Proposition	Value Creation	Means to create a business value from the needs of the customer which comes from the desire to use the value	(BASEL, 2019) (AMIT; ZOTT, 2012), (TEECE, 2010), (CHAMBERS; PATROCÍNIO, 2012), (BOWEN et al., 2009)
		Value Delivery	The architecture of revenue costs and profit associated with the business enterprise delivering that value	
		Value Capture	The realization of exchange value, being determined by the bargaining relationships between buyers and sellers	
	Business Model Elements	Technology	Usage and knowledge of tools, techniques, systems, methods of organizations or material products	(MASON; SPRING, 2011) (KREMER, 1993) (NORMANN, 2001) (NENONEN; STORBACKA, 2018a)
		Market Offering	Not a physical product, but a way to reconfigure activities and stimulate and enable value creation	
		Network Architecture	Network of actors that goes beyond a firm's immediate value chain, sometimesincluding noncommercial players	
Market Shaping	Fan Framework	Business Definition	The lens or frame through which the firm sees the rest of the layers and so is crucial	(NENONEN; STORBACKA, 2018a), (NENONEN; STORBACKA, 2018b)
		Exchange Layer	What product or service is offered, including the pricing logic	
		Network Layer	A network of actors, each with their own roles and know-how and with established relationships between them	
		Representation Layer	Arrangements of coherent but simplified illustrations of what a market is and how it works.	
		Rules Layer	The actions of the players in the market ecosystem are guided by formal and social norms	
	Designable Elements		Parts and agents that can be managed or shaped by a firm	(NENONEN; STORBACKA, 2018a)
	Market Practices	Exchange	Concrete activities related tothe consummation of individual economic exchanges	(KJELLBERG; HELGESSON, 2006), (KJELLBERG; HELGESSON, 2007b)
		Representation	Activities that contribute to depict markets and/or how they work	
		Normalizing	Activities that contribute to establish guidelines for how a market should be (re)shaped or work according to some actor(s).	
	Process of Translation		Denotes a basic social process by which something (such as a token, rule, product, technique, truth, or idea) spreads across time and space	(KJELLBERG; HELGESSON, 2007b) (LATOUR et al., 1999)
	Level of Influence	Technology Level	Functional base for the shapingof single and composite activities, and the creationof useful market offers	(KINDSTRÖM et al., 2018), (ULKUNIEMI et al., 2015), (EDVARDSSON et al., 2014)
		Market Offer Level	How buyers and sellers organize market activities that facilitate interactions centered on the exchange object	
		System Level	The level at which norms and regulations set the boundaries and rules for an entire market	
	Market Structure		A set of institutions and actors located in a physical or virtual space where mark -eting related transactions and activities take place	(VENKATESH et al., 2006), (NENONEN; STORBACKA, 2018a)

Fonte**:** Elaborated by the author.

Figura 19 – Conceptual framework



Fonte: Elaborated by the author.

Over this visual representation, we embrace that BMI might be understood as bundles of interconnecting practices that enable the business to operate as a whole and evolve with the context within which they are performed, but that in turn influence and shape the context (MASON; PALO, 2012). This decision also captures the recursive nature of market shaping actions and highlights their iterative interrelationship (BREGE; KINDSTRÖM, 2020). For this aim, we address the *representational*, *normalizing* and *exchange* practices proposed by Kjellberg e Helgesson (2007b), whose *processes of translation* (KJELLBERG; HELGESSON, 2007a) help us to comprehend the BMI dynamic of the markets encompassed by Cryptoeconomics, in which is lubricated by *objects* (CALLON, 1998a) and *designable elements* (NENONEN; STORBACKA, 2018a) arranged at different *levels of shaping* (KINDSTRÖM et al., 2018). This multi-level and multi-site approach to BMs is particularly useful towards helping managers understand how to frame and co-ordinate collective actions (MASON; SPRING, 2011).

This assumption raised by our framework is in line with the epistemological view in which claim that markets structure are not spontaneous creations, but, in fact,

socially constructed through a range of practices that influence and are influenced by the BMs (CALLON, 1998a; FLIGSTEIN; DAUTER, 2007; MASON; SPRING, 2011). Viewed in this way, the concept of 'practice' is fruitful to our approach precisely because it enables an in-depth analysis of the social connections among individuals, collectives, organizations, institutions, the situated contexts in which these connections take specific form (GHERARDI, 2009). Referring to Russo-Spena e Mele (2016), we also contextualize the innovation as an ongoing and dynamic process, beyond the idea of innovation as a mere output of a process.

Informed by BMI (MASSA; TUCCI, 2013; OSTERWALDER; PIGNEUR, 2010; TEECE, 2010; FOSS; SAEBI, 2018) and marketing literature (VENKATESH et al., 2006; CALLON, 1998a; NENONEN; STORBACKA, 2018b), we composed a rationale (center of the Figure 19) that allows us to empower Cryptoeconomics as a system for fostering value proposition through different BMI pathways and interactions. On the other hand, we systematically orchestrated an integrated lens (left side of the Figure 19) to depict how the variety of market practices are enacted through the process of translation (KJELLBERG; HELGESSON, 2007a) alongside different levels of shaping (KINDSTRÖM et al., 2018). These market practices are embedded by a set of designable elements (right side of the Figure 19) that we derived from the Fan Framework (NENONEN; STORBACKA, 2018a) and BM elements (MASON; SPRING, 2011). On this point, our focus moves to the interplay of different practices and connections in actions rather than boundaries.

Therefore, drawing on (NENONEN; STORBACKA, 2018a) and (CALLON, 1998b), our theorization allows to move away from the dominant marketing metaphor that emphasizes markets as pre-existing, to be targeted and acted upon, to one that treats them as ongoing processes, to be influenced and shaped by the actors involved through their own activities, and through the coordinated activities of multiple organizations and individuals. It is worth notice that we broaden the conceptualization of designable elements (NENONEN; STORBACKA, 2018a) to also include dimensions of business modeling (MASON; SPRING, 2011) that a company could try to manage. In addition to the Business Definition, we detail ahead each one of the levels of shaping presented in the Figure 19 as well as the designable elements associated with them.

5.2.1 Business Definition

In addition to sensing and responding to changes in established markets, firms increasingly undertake market shaping strategies to create new business opportunities (NENONEN et al., 2019b; GAVETTI et al., 2017). In this regard, market systems are plastic and differ in their capacity to change (take form) and to remain stable (retain form) during different points of time (NENONEN et al., 2014). According to Nenonen e Storbacka (2018a), market shaping begins with re-focusing the Business Definition, which also acts as a frame on the market that helps i) to comprehend the reality of the market system as well as ii) perceive possible paths to start with. In their proposed Fan Framework, the Business Definition represents a core layer, being a designable element itself through which the company sees the rest of the layers. As demonstrated in Figure 20, the Business Definition "is part of the market" and denotes two major answers: a position report ("element of *today*") that mirrors firm's identity, as well as an aspiration or direction in which the firm is heading ("element of *tomorrow*") (NENONEN; STORBACKA, 2018a).

Figura 20 – Business definition

References/Designable Elements	Conceptual Definition
Business Definition (NENONEN; STORBACKA, 2018a)	Comprehend the reality of the market system (element of *today*)
	Perceive possible paths or aspiration in which the firm is heading (element of *tomorrow*)

Fonte**:** Elaborated by the author.

As one can notice, the Business Definition encompasses not only set actual and intended identity, but it also addresses more clearly how the company see the market, by filtering and interpreting it towards a new shape that would benefit it (NENONEN; STORBACKA, 2018a). This exercise of optimizing and framing the business definition enables the firm to embark on market shaping process consistent with the conception that business modeling process is not linear (MASON; SPRING, 2011). In this way, BM theory contributes to market shaping by offering a framework that may help frame a purpose-oriented action (LATOUR, 2005; MASON; PALO, 2012) given its performative nature of framing the way how the business (and the market) is developed and grown (DOGANOVA; EYQUEM-RENAULT, 2009). As clarified by Mason e Spring (2011), a

BM framework offers an analytical perspective through which managers can seek to make sense of and share understanding between individuals, groups, and organizations of what the situation is, becoming a constituent part of what the market and what the firm is and does. Therefore, this market shaping strategy takes under consideration that a focal firm performs various activities in the effort to shape a market (ARAUJO, 2007) that can take place and have their effect at different levels of influence (KINDSTRÖM et al., 2018), which we present ahead as Technology, Market Offer, and System.

5.2.2 Technology Level

As highlighted by Teece (2010), in order to achieve a competitive advantage, technological innovation often goes along with BMI, which may also lead to the creation of a new industry. Consequently, technology fulfills a preponderant role as a functional base for the shaping of single and composite activities, and the creation of useful market offers (KINDSTRÖM et al., 2018). Technology is often the key enabler behind new markets, and it is quite often the source of new potential markets (SISSONS; THOMPSON, 2012). To this end, it has been emphasized the close relationship between knowledge and technology towards a perspective in which both physical and social things can be perceived as embedded knowledge (CALLON, 1998b; HARRISON; KJELLBERG, 2016).

Consistent with the multifaceted nature of the Cryptoeconomics and, in particular, following multiple conceptual, empirical, and market reports (CLAYTON, 2017; LUX; MATHYS, 2018; BRADDICK et al., 2018; LUX; MATHYS, 2018; BRADDICK et al., 2018; CARRIÈRE, 2019; BASEL, 2019; BLANDIN et al., 2019), we identified three major elements (blockchain, mechanism design, and token offering) from which could emerge a set of technology practices able to be exploited as drivers to create value and foster BMI. These elements underpin the workings of the Cryptoeconomics market and need to be available, viable, and compatible with the wider infrastructure and institutions (SISSONS; THOMPSON, 2012). However, Lumineau et al. (2020) argue that blockchains offer a way to enforce agreements and achieve cooperation and coordination that is distinct from both traditional contractual and relational governance as well as from other information technology solutions. Therefore, we posit these elements as subordinated to what Pelt et al. (2021) define as blockchain governance, that is a

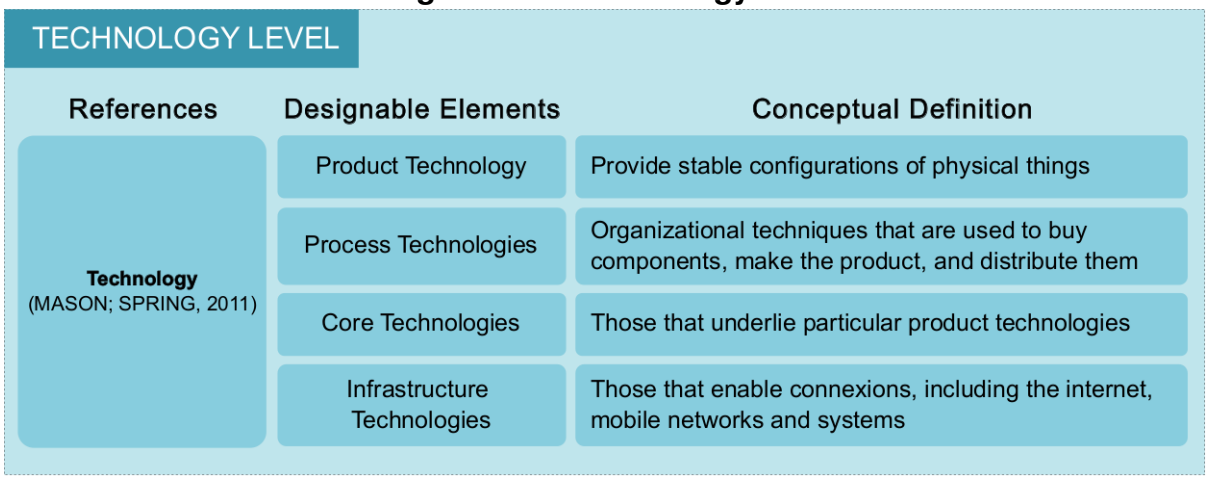
“means of achieving the direction, control, and coordination of stakeholders within the context of a given blockchain project to which they jointly contribute”.

Furthermore, the blockchain, mechanism design, and token offering are embedded with to what Mason e Spring (2011) conceptualize as classes of technology, that is: core, product, process, and infrastructure. Those elements are intrinsically inter-related, given that the decision for a specific type of token demands a different type of blockchain with a given strategy for mechanism design, including its governance model. As a social-material network embedded by the ’object agency’ (LATOUR, 2005; PACE et al., 2017), these decisions encompass various market devices with almost the same level of importance as individuals, such as mobile applications, web pages, e-wallets, smart contracts, source codes, and databases.

For example, the Ethereum platform (currently the second-largest cryptocurrency project in terms of market capitalization (COINMARKETCAP, 2021)) has recently updated its consensus algorithm, becoming based on Proof-of-Stake instead of Proof-of-Work. This public programme of action producing clear and consistent rules of conduct forges the normalizing practices (KJELLBERG; HELGESSON, 2007b). On the other hand, adopting the Proof-of-Stake is clearly influenced by a technical image market representation pursued by the Ethereum community, whose expect less consumption of electricity, reduced centralization risks, and security against different types of attacks (BUTERIN et al., 2013). Since these activities depict how the market should work (KJELLBERG et al., 2012), we may assume them as illustrative as illustrative examples of representational practices.

Most importantly, framing all these elements at Technology Level impacts further BM configurations, including the Market Offer and System levels. This perspective reveals a commitment for the focal firm when acting in and perceiving a market and, consequently, to what was previous established as Business Definition (NENONEN; STORBACKA, 2018a). In line with the previous arguments, we summarize in Figure 21 designable elements that can be managed or shaped by a firm in the Technology Level, in which goes beyond defining the Cryptoeconomics strategy *per se*. As claimed by Birkinshaw et al. (2008), technology elements should not be treated simply as ‘environmental variables’ but as part of the network of internal and external actors that practice the BM.

Figura 21 – Technology level



Fonte**:** Elaborated by the author.

Considering the organization is aware of how it will explore the Cryptoeconomics to frame the market, including all the underlying technology that encompasses this configuration, we may advance to the Market Offer level and approach further BM decisions related to the value proposition.

5.2.3 Market Offer Level

The market offer is intrinsically related to elaborating what should be exchanged, specifically that the different market actors in a collaborative process need to define that object and the potential value it might have (FINCH; ACHA, 2008). Following (MASSA; TUCCI, 2013) and the findings from our SLR, we posit that this definition emerges as the product of two distinct pathways, respectively defined as Business Model Design (BMD) and Business Model Reconfiguration (BMR). The BMD allows companies to commercialize new ideas and technologies. The focus is on the entrepreneurial activity of creating, developing, and validating a BM for a newly formed organization. Alternatively, BMR refers to the phenomena by which managers reconfigure organizational resources to change a BM, that is, firms can also view the BM as a source of innovation itself. This perspective is aligned to the view proposed by Nenonen et al. (2019b), in which market shaping can be used to create completely new market systems as well as to improve existing market systems. Thus, both BMD or BMR are shaped according to the Business Definition and market practices driven by the Technology Level from which denote how buyers and sellers organize market activities and, consequently, how to facilitate interactions centered on the exchange object (ULKUNIEMI et al., 2015).

As we can notice, market offering concerns the nature of the producer-user interaction, rather than any essential feature of a particular product or service (NORMANN, 2001). These service provision efforts, also called exchange practices, gather what might seem to be the most straightforward of market practices; it refers to the concrete activities related to the consummation of individual economic exchanges (KJELLBERG; HELGESSON, 2007b). This includes all the idiosyncratic activities related to a specific economic exchange, such as specifying and presenting products, negotiating prices and terms of delivery, to mention just a few (KJELLBERG; HELGESSON, 2007a; HANKANSSON, 1982). In other words, the firm must decide exactly what product or service it is offering and agree on a pricing logic, which means, as stated by Nenonen e Storbacka (2018a), more than just “how much”. On this subject, Finch e Acha (2008) urge the importance of defining what should be exchanged, specifically that the different market actors in a collaborative process need to define that object and the potential value it might have. Hence, a market shaping strategy also involves a method of connecting sellers and buyers, demanding an interaction between actors in a market or a channel within it as a value proposition emerges (KINDSTRÖM et al., 2018).

As clarified by Osterwalder e Pigneur (2010), the value proposition is described as an aggregation of benefits, in the form of products or services, offered by a firm to its customers. To drive future efforts of value proposition, firms have to assess their business architecture in terms of value creation, value delivery, and value capture (FOSS; SAEBI, 2018; TEECE, 2010). In this sense, Lepak et al. (2007) point out that value creation depends on the relative amount of value that is subjectively realized by a target user and that this subjective value realization must translate into the user’s willingness to exchange a monetary amount for the value received. In summary, the aim of market shaping is to enhance the value creation and realization for stakeholders in a market (NENONEN et al., 2019b). In turn, the concept of value delivery is mainly addressed as the process of the floating value in a value network (DAEYOUP; JAEYOUNG, 2015). Further, value capture is the realization of exchange value and is determined by the bargaining relationships between buyers and sellers (BOWMAN; AMBROSINI, 2000).

Then, relying on (MASON; SPRING, 2011), we characterize the offering as consisting of the value proposition opportunity arising from alternative combinations of artifacts, access to suppliers’ capabilities and capacities, and activities performed by the

supplier(s) on the customer and/or its property. By looking beyond the blinders of the seller-buyer duo, we overview in Figure 22 a list of designable elements to the Market Offer level.

Figura 22 – Marketing offer level

MARKET OFFER LEVEL

References	Designable Elements	Conceptual Definition
Market Offering (MASON; SPRING, 2011)	Artefacts	Some tangible way of the product or service being consumed
	Access	Access to suppliers' capabilities and capacities
	Activities	Opportunities for differentiation and extra profit among firms used to an artefact-based offering
	Value	Benefits derived by a customer from an exchange
	Transactions	Occurs when a good or service is transferred across a technologically separable interface
	Relationships	Relationships between a focal firm and the organizations with which it transacts
Network Layer (NENONEN; STORBACKA, 2018a)	Infrastructure	What do customers need to use our products and services
Exchange Layer (NENONEN; STORBACKA, 2018a)	Sales item	What is being exchanged
	Pricing	How much is it worth
	Matching method	How do sellers and buyers find each other

Fonte**:** Elaborated by the author.

By identifying a wide range of activities that companies and customers engage in the value proposition process, one can highlight the importance of interactions as well as the various roles of objects that lubricate market exchanges (CALLON, 1998b). For instance, in the context of cryptocurrencies, we may highlight the exchange practices around trading, payment, and selling activities, which are usually performed through mobile applications, web platforms, and e-wallets. These practices are of great importance since they are the most recognized by the general public and represent a direct point of contact with and between the users and sellers. As one can expect, a cryptocurrency exchange is not part of the regular stock exchange and face particular challenges, such as 24/7 operation and price volatility between exchanges. Hence, there is a number of cryptoexchange companies in the world competing, innovating, and

aiming to improve the user experience as well as easier the onboard of new customers to the market devices involved alongside the crypto trading process.

5.2.4 System Level

Following Venkatesh et al. (2006), we address market as a set of institutions and actors located in a physical or virtual space where marketing-related transactions and activities take place. Then, markets pose as plastic and malleable systems in which are an outcome of actions by a network of market actors (organizations and individuals) with interactions fostering value creation (NENONEN; STORBACKA, 2018b). As weighted by Kindström et al. (2018), “a narrow focus on the customer is essential but not enough for shaping a market; instead, an understanding of the whole system, including a focus on downstream actors, becomes important”. Viewed in this way, a market ecosystem consists of a network of actors that goes beyond a firm’s immediate value chain, sometimes including non-commercial players such as industry associations and public interest groups (NENONEN; STORBACKA, 2018a). These networks may be seen “as containers of knowledge and network relations as conduits that convey knowledge from one place to another” (RUSSO-SPENA; MELE, 2016).

In all this discussion of network architecture, the dynamic and evolutionary nature of BM becomes clear by demonstrating that network connexions are not all about market transactions (MASON; SPRING, 2011). In the light of (EDVARDSSON et al., 2014), Kindström et al. (2018) advocate that system level encompasses norms and regulations that set boundaries and rules for an entire market. As institutionalized solutions, the markets are continuously formed and reformed through the representational and normative practices in which actors engage to depict how they work and how the organizations want to be seen (KJELLBERG et al., 2015).

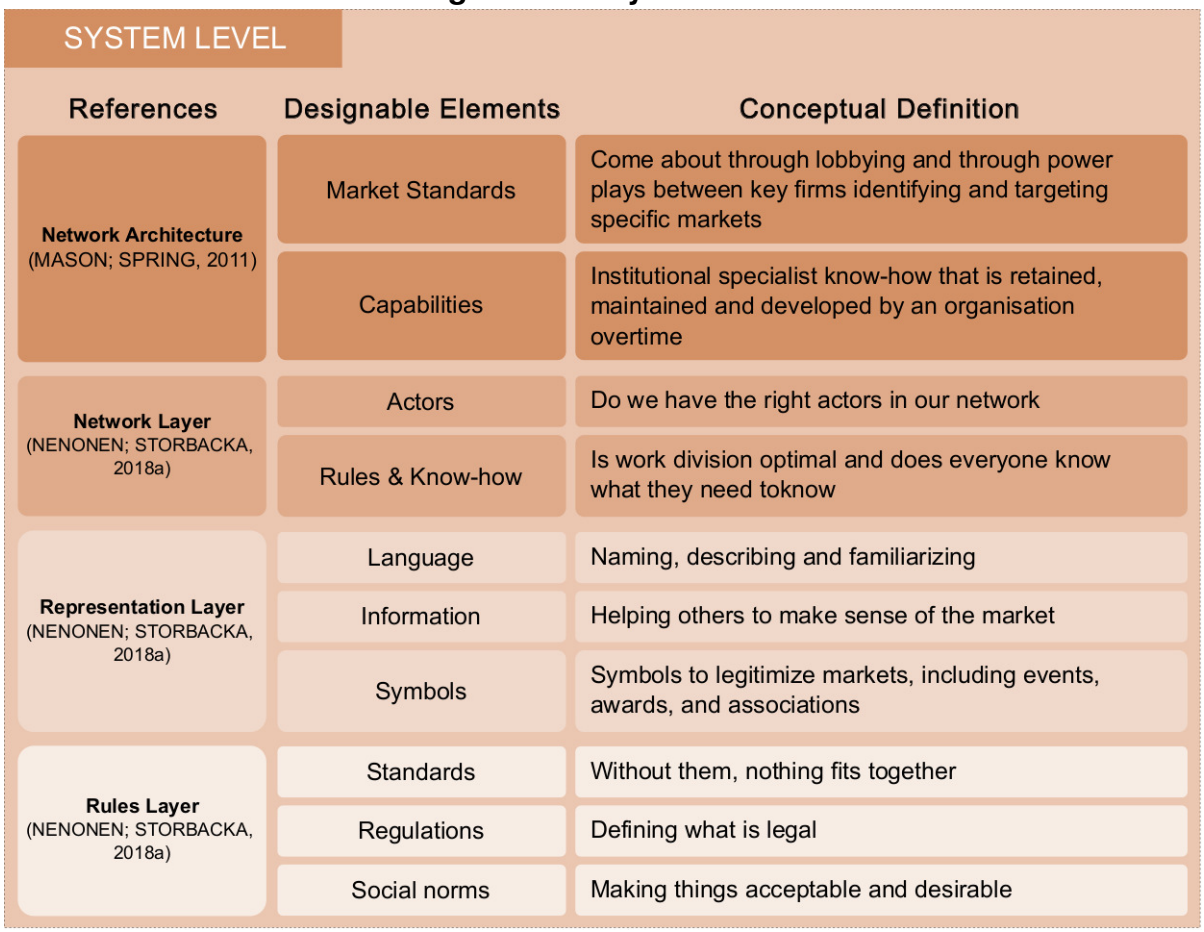
Market representations are arrangements of coherent but simplified illustrations of what a market is and how it works (NENONEN et al., 2019b). These image representations are used to symbolize the market through elements like terminology, information such as statistics and media outputs, and symbols such as industry events and awards (NENONEN; STORBACKA, 2018a). It is worth noticing that representational practices may change over time in response to the changing environment supports, for example, market studies, sales statistics, media coverage, or academic work (CALLERO,

1994). In particular, the market of cryptocurrencies is widely influenced by representational practices enacted through social media platforms (BECK et al., 2019). Businesses, developers, investors, and even journalists covering the cryptocurrency media have been widely using social media platforms to coordinate their efforts. Knowing this rich relationship, researchers have been investigating cryptocurrency price valuation based on user comments (KIM et al., 2016) and social media sentiment (LAMON et al., 2016), for instance. As one can see, central to representational practices are ideas concerning *what* to measure and *how* to measure, that is, established measures and methods of measurement which are respectively devised by normalizing practices (KJELLBERG; HELGESSON, 2007b).

As we previously introduced, normalizing practices account for activities that contribute to establishing guidelines for how a market should be (re)shaped or work according to some (group of) actor(s), for example, standards, regulations, social norms, and guidelines on acceptable market behavior (KJELLBERG; HELGESSON, 2007b). These activities on-going in all markets whereby formal and social norms emerge or are consciously created (NENONEN et al., 2017). According to Sissons e Thompson (2012), markets often depend on having established standards that all players can follow to allow them to be coordinated and achieve critical mass. Nenonen e Storbacka (2018a) state that such standards come about through lobbying and through power plays between key firms identifying and targeting specific markets. According to them, this perspective has two important implications for the practice of BM: i) the standards recognized by firms frame the way managers identify and pursue market opportunities and ii) the notion of markets and standards might also help managers frame practices for market-making as they seek to influence and shape standards in a strategic move.

Encompassing normalizing practices, for instance, some countries are reportedly planning to bring a law to ban cryptocurrencies, given that most ones are not backed by a public authority (SAPOVADIA, 2015). On the other hand, there are also governments currently working on the design of a prudential treatment for cryptoassets regulation (BLANDIN et al., 2019). In keeping with previous observations, we derived in Figure 23 a list of designable elements that the focal firm can try to manage or influence at the System Level.

Figura 23 – System level



SYSTEM LEVEL		
References	**Designable Elements**	**Conceptual Definition**
Network Architecture (MASON; SPRING, 2011)	Market Standards	Come about through lobbying and through power plays between key firms identifying and targeting specific markets
	Capabilities	Institutional specialist know-how that is retained, maintained and developed by an organisation overtime
Network Layer (NENONEN; STORBACKA, 2018a)	Actors	Do we have the right actors in our network
	Rules & Know-how	Is work division optimal and does everyone know what they need toknow
Representation Layer (NENONEN; STORBACKA, 2018a)	Language	Naming, describing and familiarizing
	Information	Helping others to make sense of the market
	Symbols	Symbols to legitimize markets, including events, awards, and associations
Rules Layer (NENONEN; STORBACKA, 2018a)	Standards	Without them, nothing fits together
	Regulations	Defining what is legal
	Social norms	Making things acceptable and desirable

Fonte**:** Elaborated by the author.

5.3 Chapter Final Remarks

Existing literature has overlooked the relationship between Cryptoeconomics and BMI despite the great potential of this field creating and/or shaping existing markets. Consequently, relatively little is known regarding the role of BMI on the shaping of new markets around Cryptoeconomics. Therefore, a conceptual framework is needed to make sense of, and categorize, data in order to allow market practices to emerge, including their link to market shaping process.

As the frameworks are only a lens for understanding the reality rather than the reality itself, the primary task is picking a combination of dimensions that is relevant for the context under study (JANSSEN; HERTOG, 2016). Our conceptual framework offers an interpretation that deconstructs and describes composite BMI activities involved in shaping markets triggered by Cryptoeconomics, differently from the metaphor that emphasizes markets as pre-existing. At the heart of this process, we laid out in the interplay among induction, derivation of concepts from data, and deduction aimed at

articulating the relationship between concepts. By conceptualizing the markets as socio-material networks, we assume an assumption in which market actors can influence the process about how they can facilitate market innovations (STORBACKA; NENONEN, 2015; KJELLBERG et al., 2015). Then, we opt to illuminate this collective process through delving into pivotal conceptual elements derived from extant sources, including academic, government, and market reports. In summary, we embrace that BMI might be understood as bundles of interconnecting practices (MASON; SPRING, 2011), whose processes of translation (KJELLBERG; HELGESSON, 2007a) clarifies the dynamic of the market shaping (NENONEN et al., 2017) in a multi-level scope (KINDSTRÖM et al., 2018). In this sense, by identifying a wide range of activities that Cryptoeconomics firms engage in the value proposition process (OSTERWALDER; PIGNEUR, 2010), we may advance the understanding of interactions as well as the various roles of objects (CALLON, 1998b) and designable elements (NENONEN; STORBACKA, 2018a) that lubricate market exchanges.

In investigating these issues, this study makes three major theoretical contributions. First, we offer a systematic view that markets around Cryptoeconomics are not given and deterministic contexts, exogenous to the firm, and other market actors must adapt (NENONEN et al., 2014; NENONEN; STORBACKA, 2020). Second, we provide insights into how forward-looking may be empowered by Cryptoeconomics towards fostering BMI through different pathways. Finally, we add to the literature by orchestrating a framework that broadens the conceptualization of market shaping by addressing other underlying dimensions related to BMI and Cryptoeconomics. Although conceptual framework analysis has its limitations, it also offers some important advantages as elicited by Jabareen (2009): 1) it is based on flexible conceptual terms; 2) it can be reconceptualized and modified according to the evolution of the phenomenon (consistent with the basic premise that social phenomena are evolutionary and not static); and 3) help to understand phenomena rather than predict it.

Lastly, a transferable threat (LINCOLN, 2007) to the validity of this study relies in the fact that we deliberately adopted the epistemology of practices to guide our research. Even if it contributes to shift the focus to a social constructionist approach converging to the thesis aim, it might be of interest to consider other epistemological lenses and move the focus onto other perspectives. Thus, we do not claim our framework is transferable in its entirety across different industries, but we hope it is general enough

to be valuable to studies in the interplay between Cryptoeconomics, BMI, and Market Shaping. In addition, we point out the consistency threat (TASHAKKORI et al., 1998) concerning the choice of conceptual elements that compose our framework. Despite supported by previous literature and multiple data sources as well as a parsimoniously position to avoid unnecessary elements (BACHARACH, 1989), this particular framing and abstraction process leads us to figure out the phenomena by a limited scope that could jeopardize the outcomes' comprehension. Aiming to mitigate this threat, we carefully documented and reported every stage of the research process allowing the reader to assess how we accurately we depicted both problem and framework building. To demonstrate the framework explanatory power and utility (THAGARD, 2018), we approached conceptual elements that can be traced to previous empirical studies. Hence, our capability of explaining the phenomenon derived by the analogy of ensuring the use of earlier theories that interact with with other theories to support existing empirical investigations as the basis for our conceptual elements arrangement. Since conceptual frameworks evolve as a study continues and the bigger picture becomes clearer (MILES et al., 1994), we present in Appendix A the multiple reconfigurations of our framework alongside its evolution. As suggested by Manson (2006), it is a good practice for the researcher to record all tentative designs (including excluded designs) developed alongside the research process.

6 UNFOLDING CRYPTO-BASED MARKET SHAPING IN PRACTICE

This chapter presents the method and results concerning the **Evaluation** and **Conclusion**, as highlighted alongside Chapter 3. In Section 6.1, we discuss both data collection and data analysis procedures conducted to uncover and categorize market practices in the light of our proposed framework. In Section 6.2, we analyze our findings. Lastly, Section 6.3 brings the final considerations of this chapter.

6.1 Research Design

For this empirical evaluation, we chose to conduct a qualitative multiple case study (STAKE, 1995; EISENHARDT; GRAEBNER, 2007). Yin (2017) argues that there are many advantages of studying more than one case where the main argument is that it improves theory building, as the analysis and conclusion will be more substantial and powerful than when a single case is used. This approach enables us to investigate how forward-looking firms are shaping the markets fostered by Cryptoeconomics, including, more specifically, i) which market practices are enacted towards market shaping and ii) how these market practices are translated into market shaping. Because this multifaceted and complex field is still emerging, we addressed the methodology principle of 'follow the practices' proposed by Gherardi (2009), that is to acquire concrete meaning through analyzing situated practices and moving up from it to the institutional order or conversely moving down from it to the individual-in-situation.

As in any case study, our selection of cases was key (YIN, 2017). We used a purposeful sampling process to select six forward-looking firms that ensured we could study the phenomenon under study. According to Patton (1990), the logic and power of purposeful sampling lies in selecting information-rich cases for study in-depth. Four core criteria guided the firm's choice: (1) it devises Cryptoeconomics as a strategic tool for value proposition; (2) it should have an internally articulated strategic aim of shaping the market; (3) it should be able to demonstrate effects that contribute to the market shaping strategy; (4) in-depth access had to be possible. To ensure diversity, we also selected cases from a variety of markets and sizes (CORBIN; STRAUSS, 2014). Following this multi-criteria scope, we filtered a sample of 14 companies to try access. From this list of companies, we mapped their high-level managers through LinkedIn platform. A part of the participants was contacted via e-mail (see Appendix B to view the invitation

template), while the other one was approached by WhatsApp due to the professional network of the authors. At the end, we obtained the confirmation of participants from six companies. Similar to (KINDSTRÖM et al., 2018), although we selected our case firms according to their market shaping profile, our study does not intend to evaluate whether their strategies lead to success; instead, we aim to analyze which practices the firms performed as part of their market shaping strategies.

6.1.1 Overview of the Case Studies

We overview below the six case firms, including their business and the rationale behind the choice for them. We believe that each case study's choice is of particular importance and representativeness for this research since they are complementary in market segment, size, value proposition, and stage of development.

Firm A is a large public bank that has pioneered the use of digital tokens to track the use of public resources in financial system. With more than 60 years of existence and approximately 2000 employees, Firm A offers several financial support mechanisms to companies of all sizes as well as public administration entities, enabling investments in all economic sectors. Firm A has devised an insightful demonstration of BMR by developing an internal laboratory devoted to encouraging intrapreneurship towards building blockchain-based solutions. In particular, we focus on a specific service designed as a ERC20 fungible token within a blockchain structure to track the flow of funding disbursements. This project was initially conceived by five employees to dispute an internal innovation contest in 2017. Being one of the finalists, this project accounted with a considerable support of members of the executive committee and is currently under development following a strategy similar to a "startup model" (RIES, 2011) inside Firm A. Despite being in a traction process, the project has already attracted worldwide attention and achieved promising results due to its groundbreaking capability to shape a novel way to ensure transparency to society.

As another case study, Firm B is a fintech that provides a digital account with no monthly fees built for the use of cryptocurrencies, being a pioneer company to provide crypto-account in Brazil. As an example of BMD, Firm B allows to use both reais (current brazilian fiat money) and cryptocurrencies in daily life, link them to a credit card, buy and sell cryptocurrencies, make payment slips, and bank transfers. They also

adopt CryptoBRL (a stablecoin backed by reais) for instant transactions between bank account holders. Thus, their clients can use stablecoin for transfers anytime or day of the week. Privately held, Firm B was founded in 2018 and currently has 13 employees.

Firm C is the first Brazilian franchise model that offered solutions based on cryptoassets and blockchain. Privately held, Firm C currently has more than 70 employees, and it was founded in 2017. They posit themselves as a highly integrated group/ecosystem formed by three other complementary services/companies which are headquartered in the same location. The first service is a cryptoeconomic rental model that accounts for some of the largest altcoins in the market. The second service is a platform to intermediate the digital payments between reais and cryptocurrencies. Finally, they also designed a crypto exchange system, which facilitates the purchase and sale of assets. Firm C contributes to representing an illustrative example of BMD, since its BM was in the form of a newly formed organization with pioneer efforts towards the shaping of an ecosystem of services related to the cryptoassets management.

Further, Firm D is a newly formed fintech asset manager specialized in cryptoassets. Founded in 2017 and currently with approximately 20 employees, they posit themselves as the bridge to bypass the gap between traditional financial markets and global digital assets. According to them, their main activity is to offer the traditional financial market a way to invest in different cryptocurrencies, such as Bitcoin, Ether, and Ripple, through regulated investments. Seeking to give investors in the traditional financial market access to the crypto class, Firm D has developed various investment funds for each investee profile. They also pioneered the design of a worldwide index to represent the crypto market, serving as a trusted benchmark for digital asset investing.

On the other hand, Firm E is a traditional asset manager highly specialized in structured and alternative funds that aims to seek medium and long-term returns. Among their funds, they recently designed three specific ones focused on cryptoassets that were pioneered released in Brazil in 2018. This shift demonstrates a strategic decision of BMR by Firm E, since they adapted their BM to embrace the opportunity provided by the crypto market. Founded in 2008, Firm E currently has 20 employees, being 6 of them responsible for operating the crypto funds.

Finally, our sixth case study, hereafter named Firm F, is a cooperative crypto credit banking-as-a-service platform whose proposal is to distribute impact and promote changes in the global economy by supporting cooperatives. Firm F is a startup that was

founded in 2017 and began as a hackathon submission. The team developed an idea that demonstrated how blockchain technology could be utilized towards Sustainable Development Goals. Privately held, Firm A currently has more than 50 collaborators and contributes to representing an example of BMD, since its BM was in the form of a newly formed organization. In addition, we chose this firm due to its pioneer position in the market as social enterprise that has been shaping the market with its cooperative cryptoasset to increase transparency for investors towards the support of impact initiatives.

6.1.2 Data Collection

Regarding the data collection process, we accomplished it in accordance with the principles of triangulation by means of in-depth interviews, unobtrusive observation, and document analysis. This decision was done not seeking convergence, but to increase the plausibility and richness of the achieved results (MESQUITA et al., 2020). In particular, this multi-site approach is of special importance for our methodology scope since it enables us to holistically investigate the *sayings* and *doings* of each organization (SCHATZKI, 2005), all of which are units of analysis.

The primary empirical basis for this research comes from the speeches of 17 in-depth interviews, whose participants' characterization is summarized in Table 4. By means of purposeful sampling, the subjects of our investigation demonstrated to be fit to the criteria previously defined, that is, key employees and high-level managers responsible for leading companies prone to market shaping practices whose BM devised Cryptoeconomics as a strategic tool for value proposition. Most of the interviewees are at the strategic level of their companies and have shown to be experienced in the Cryptoeconomics and blockchain market. On average, their experience level accounts for three years. Further, the most experienced one has five years, while the one less experienced has eight months. The academic background of the participants is also diverse, covering technology, economics, and management fields. It is worth to noticing that despite being system analysts, P2, P3, P4, and P6 are responsible and decision makers on the crypto-based service designed by Firm A under study in this work.

Quadro 4 – Participants' characterization

Firm's ID	Participant's ID	Current Role	Years in the Firm	Highest Degree	Undergraduate Course	Graduate Course	Work Experience (in years) with Cryptoeconomics or Blockchain	Previous role to work with Cryptoeconomics	Interview Time	Interview Date
Firm A	P1	Head of Blockchain	17	Master's	Informatics	Informatics	2	Business Administrator	1:13:26	11/09/2020
	P2	System Analyst	12	Master's	Computer Science; Economics	Computer Science	3	System Analyst	0:55:20	23/09/2020
	P3	System Analyst	22	PhD	Informatics	Systems Engineering	5	IT Architect	1:18:32	29/09/2020
	P4	System Analyst	12	Master's	Computer Science	Systems Engineering	3	System Analyst	0:52:13	06/10/2020
	P5	Chief Information Officer	28	Bachelor's	Data Processing	-	3	Business Superintendent	1:00:50	21/10/2020
	P6	Business Administrator	10	Bachelor's	Business Administration; Biology	-	3	Business Administrator	0:43:44	22/10/2020
Firm B	P7	Chief Executive Officer	3	Bachelor's	Business Administration	Economics (unfinished)	3	Business Consultant	1:10:13	05/11/2020
	P8	Head of Marketing	0,7	Bachelor's	Economics	Big Data Analytics	0,7	Business Consultant	1:07:17	25/11/2020
Firm C	P9	Expansion Manager	2	Bachelor's	International Relations; IT Management (in progress)	-	3	Business Administrator	0:52:43	28/09/2020
	P10	Business Administrator	1	Technologist	Commercial Administration	Strategic and Financial Management	0,8	Financial Analyst	0:51:39	27/10/2020
	P11	Chief Executive Officer	4	High School	Business Administration (unfinished)	-	4	Bank Officer	0:48:40	29/10/2020
	P12	Chief Executive Officer	2	High School	-	-	2	Sales Consultant	0:36:28	05/11/2020
Firm D	P13	Chief Technology Officer	3	Bachelor's	Computer Engineering	-	5	IT Architect	0:52:00	26/10/2020
	P14	Chief Operations Officer	3	Master's	Electrical Engineering	Economics	3	Product Manager	0:54:49	13/11/2020
Firm E	P15	Chief Executive Officer	4	Bachelor's	Computer Science	-	3	Portfolio Manager	0:47:05	28/10/2020
	P16	Portfolio Manager	4	MBA	Production Engineering	Master's in Business Administration	4	Bank Treasurer	0:39:03	23/11/2020
Firm F	P17	Business Executive	3	Master's	Business Administration	Business Administration and Accounting	4	Business Consultant	1:12:38	22/09/2020

Fonte: Elaborated by the author.

The interview schedule was semi-structured, following the idea of combining structure with flexibility (RITCHIE et al., 2013). This in-depth format allowed us to explore fully all the factors that underpin participants' answers: reasons, feelings, opinions, and beliefs (LEGARD et al., 2003). Due to the social distancing imposed by COVID-19 pandemic, the interviews were conducted online by video conference. Even remotely, we did not found major problems, given that it was possible to sufficiently interact and observe the interviewees reactions through the webcam. In line with the good practices presented by Boyce e Neale (2006) and Ralph et al. (2020), we also encouraged extensive and descriptive answers, allowing for key points raised by the interviewees to be explored in greater detail. From this interaction between the interviewer and the interviewee, we could achieve the co-creation of new knowledge (WHITE et al., 2011). In the interviews, we investigated actual actions rather than intentions by focusing on concrete market-strategic activities that firms performed. In addition, the interview guide was previously validated through a pilot interview with a highly-experienced management professor that accounts for 18 years of experience in research and development projects. This professor is the head of a business modeling lab in a large Brazilian university and has concluded a post-doc focused on innovation in 2013.

We organized the interview guide into four major steps (see Appendix C for further information about each step). We slightly altered the interview guide across interviews to ensure that the topics and questions properly t the interviewees' managerial roles. Firstly, we briefly introduced the research context to the participant and, subsequently, we collected confidentiality and non-disclosure agreements. Secondly, we asked questions aiming to characterize the participant's academic and professional background. Third, in-depth and open-ended questions grounded on the conceptual framework were then asked the interviewee seeking to uncover his/her practices and experiences. Finally, the fourth step was designed to close the interview, clarify possible doubts, and collect overall feedback. Interviews were made between September 11 and November 25 2020 by video-conference and separately conducted. The interviews ranged from 36 to 73 minutes and lasted 43 minutes on average. It is worth noticing that interviews were authorized to be recorded and further transcribed into text (excluding minor details and meaningless noise) in order to maximize, explore the intrinsic value of the data and increase the study's reliability (YIN, 2017). To this end, the Amberscript[1]

[1] <https://www.amberscript.com>

tool was partially used for the automatic transcription of audios, with extra and large manual adjustments to correct the texts whenever necessary (accomplishing 254 pages of transcription).

In addition, we have supplemented the in-depth interviews with an extensive unobtrusive observation focused on online content. In summary, unobtrusive observation allows researchers to collect data without asking questions, making posts, or otherwise involving themselves in interactions with the online community (ALENEZI, 2020). As pointed by Robinson (2001), this qualitative study of online content has potential for revealing new knowledge about subjective experiences and their meanings which might not emerge in face-to-face research or solicited accounts. As site boundaries for our unobtrusive observation, we focused on the official website, blog, and Instagram profile maintained by each company. In particular, we choose to approach the Instagram since it was in the most of the cases the one with most engagement (number of likes) and public reach (number of followers) when compared to the other best known, such as Facebook, Twitter, and LinkedIn. We also noticed that the companies usually replicate their content between their social media platforms. Indeed, social media research has been increasing over time as well as demonstrating alongside the last years to be an insightful tool for marketing-oriented research, since it contributes to learning more about human interaction and the type of content posted on social media sites (KHANG et al., 2012; SNELSON, 2016).

In order to bring non-textual cultural data, we also observed YouTube videos in which our interviewees attended. As one can see, the use of unobtrusive observation fits very well with our intent of observing the practices enacted by the companies. In addition to overlapping different forms of types and structures for social data, the addressed digital platforms reach the six criteria suggested by Kozinets et al. (2014) when looking a online field site; they are: relevant, active, interactive, substantial, heterogeneous, and data rich. Combined with the high rate of content production, social media platforms can offer researchers massive and diverse dynamic data sets (YIN; KAYNAK, 2015; ANDREOTTA et al., 2019).

We opted by non-disclosed of researcher presence during the observation in order to avoid negatively impact the organic nature of the conversation due to the effect of researcher engagement and exposure (ELLIOTT et al., 2005). Several studies refer as a valid and accepted practice to the process of reading or ‘watching’ (also

known as *lurking*) community spaces online without posting (ADLER; ADLER, 2005; ALAVI et al., 2010; WEI et al., 2011). Furthermore, we notice that participation is not always appropriate and, in some cases, can be risky or impossible, such as in the case of communities of practices (ADDEO et al., 2020). In this sense, one distinct advantage of non-participant observation is that the researcher can study a situation in its natural setting without altering the conditions; while one disadvantage is that non-participant observation relies on observing behaviour and *only* observing behavior (PARKE; GRIFFITHS, 2008). Since the investigated spaces are openly accessible as well as dedicated to public discourse, we considered it dispensable to obtain consent for online content. Moreover, we do not consider any risk of harm to the case studies as a result of our research. As Whalen (2017) advocated, scenarios and conditions like the one addressed by this work do not necessarily demand consent for online content due to its public availability.

We retrospectively browsed public, historical, and online content available in the website, blog, Instagram, and YouTube previously to December 01 2020, trying to understand the structure, codes, and distinctive ways of communication. This procedure was done in order to obtain familiarity with each case study and learn as much as possible about their sites. Then, we opted to do not overshadow the engagement with culture context and capture *in-the-moment* impressions and experiences, and the deep culture-bound introspective analysis that marks all strong anthropological and sociological ethnography (KOZINETS et al., 2014). Hence, we followed a pragmatic-interactionist approach concerned to the observations of “interactive acts” in the “game” that is played on the online fields of community and culture (KOZINETS, 2010). In this interactionist perspective, the unit of analysis is not the “person”, but the gesture, the behavior or the act, which includes the speech act or utterance (MEAD et al., 1967).

Alongside observational field notes aiming to offer systematic details about the social and interactional processes, we have considered both archival data (pre-existing computer-mediated communications) and non-textual cultural data (audiovisual formats, such as graphical, screen captures or videos). Following Creswell e Creswell (2017) and Vink (2019), we adapted the template for social structure archeology for taking the field notes by discerning the descriptive (physical enactments) and reflective (inferences about the invisible) observations. As advocated by Wittgenstein (2009), every interactive online posting is a social action, a communicative performance that can

be conceived of as a “language game”. Even though much of the online interaction can be captured with data downloads and screenshots, the field notes were made towards capturing our own impressions to the meaning of interactions and events observed (KOZINETS, 2010). Data selected from multiple sources were put together in table form in a Google Sheets file, which helped us organize the data for further analysis according to the online social space as well as the descriptive and reflective notes associated to it.

The in-depth immersion during unobtrusive observation has provided us open access to reliable, valuable, and wide coverage documents, such as media articles, scientific works, presentations files, public reports, supporting guides, press releases, privacy policies, use terms, whitepapers, software public repositories, public policies, and regulatory documents. Hence, we incorporated the document analysis as a research method since it enables us to ensure that our work is critical and comprehensive by treating the documents as relevant respondents (O’LEARY, 2017). For this aim, we followed the 8-step process suggested by Bowen et al. (2009) for documents analysis: (1) gather relevant texts, (2) develop an organization and management scheme, (3) make copies of the originals for annotation, (4) asses authenticity of documents, (5) explore document’s agenda and biases, (6) explore background information, (7) ask questions about document and, finally, (8) explore content.

As one can notice, our research corpus is quite thick and addresses a variety of evidence and multimedia data, including downloaded textual, audiovisual files, screen captures, online interview transcripts, and field notes. According to Yin (2017), multiple sources allow the investigator to address a broader range of historical, attitudinal, and behavioral issues. In this sense, Figure 24 presents an overview of collected data which evidences the richness of the collected material. We achieved almost 16 hours of recorded in-depth interviews, from which we derived 254 pages of description. Regarding the unobtrusive observation, we accounted with a diversity of archival and non-textual data sources to ensure the features of being relevant, active, interactive, substantial, heterogeneous, and rich (KOZINETS et al., 2014). These available online sites provided us to immerse and elaborate 22 pages of field notes covering our impressions to the meaning of interactions and events observed. Finally, we had access to multiple documents that altogether summed up to 123 instances of analysis. By triangulating our collected data, we attempted to provide ‘a confluence of evidence that breeds credibility’ (EISNER, 2017).

Figura 24 – Research corpus

Firms	In-depth Interviews	Unobtrusive Observation	Document Analysis
Firm A*	P1 01h 13min 26s P2 00h 55min 20s P3 01h 18min 32s P4 00h 52min 13s P5 01h 00min 50s P6 00h 43min 44s	Website (2) Videos (4) Screeshots (8)	Media Article (16) Scientific Work (5) Presentation (3) Public Report (3) Software Public Repository (1)
Firm B	P7 01h 10min 13s P8 01h 07min 17s	Instagram (361 posts) Website (3) Blog (4 posts) Videos (3) Screeshots (5)	Media Article (11) Supporting Guide (5) Press Release (1)
Firm C**	P9 00h 52min 43s P10 00h 51min 39s P11 00h 48min 40s P12 00h 36min 28s	Instagram (301 posts) Websites (4) Blog (3 posts) Videos (3) Screeshots (8)	Media Article (9) Privacy Policy (2) Use Terms (2) Press Release (1) Software Public Repository (1)
Firm D	P13 00h 52min 00s P14 00h 54min 49s	Instagram (208 posts) Website (1) Videos (4) Screeshots (6)	Media Article (16) Public Report (4) Regulatory Document (3) Supporting Guide (1)
Firm E	P15 00h 47min 05s P16 00h 39min 03s	Instagram (87 posts) Website (1) Videos (3) Screeshots (4)	Media Article (24) Public Report (4) Regulatory Document (1)
Firm F	P17 01h 12min 38s	Instagram (510 posts) Websites (2) Blog (4 posts) Videos (3) Screeshots (4)	Media Article (13) Scientific Work (2) Supporting Guide (1) Whitepaper (1)
	15:56:40 accumulated time	254 pages of transcription***	22 pages of fields notes***	123 collected documents

* Firm A has not mentioned in their Instagram profile the project under investigation in this work.
** Since Firm C is part of a group formed by other companies with specific services, we also observed online content related to each one.
*** Pages written with Arial font and size 12.

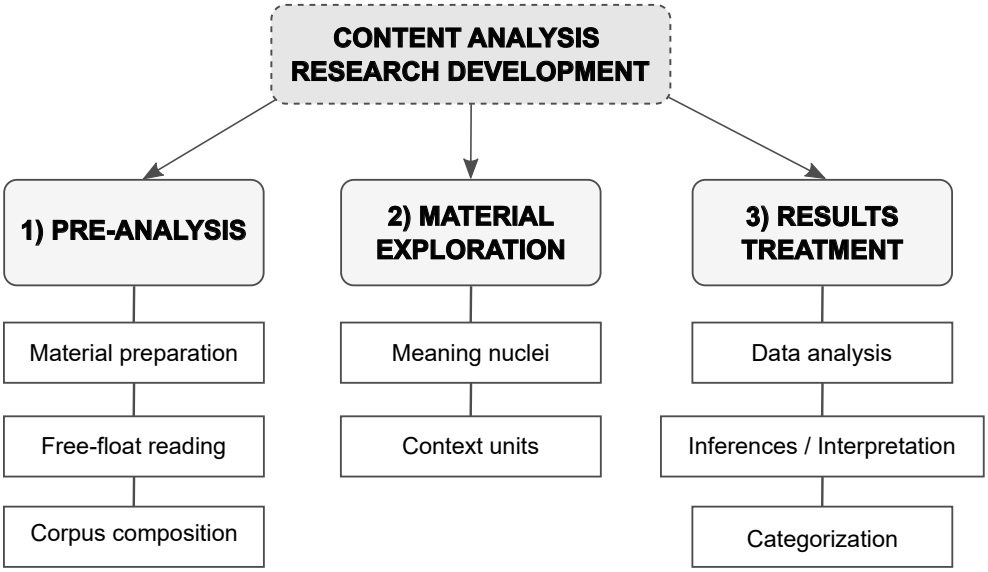
Fonte**:** Elaborated by the author.

6.1.3 Data Analysis

Addressing (EISENHARDT; GRAEBNER, 2007) and (YIN, 2017), we conducted a two-stage process to data analysis, starting with within-case examinations and moving to cross-case comparisons. Grounded in an abductive logic (DUBOIS; GADDE, 2002), we systematically and iteratively switched between the empirical results and theoretical inputs towards findings' generation. Moreover, in order to enhance robustness of

the results (YIN, 2017) and organize our collected data into a rigorous, meaningful, and useful form of research output, we followed the steps of data condensation, data display, and conclusion drawing/verification suggested by Miles et al. (1994). We carried out the data condensation process continuously throughout our research cycle by addressing the analytical coding-based method Thematic Analysis of Content (TCA) (SMITH et al., 1992; BARDIN, 1979). We made this choice due to the inductive capability to enable the emergence of categories from the data and reveal insightful structures. Following (BARDIN, 1979), we based our content analysis trajectory as shown in Figure 25.

Figura 25 – Content analysis trajectory



Fonte**:** (BARDIN, 1979).

The *Pre-Analysis* focuses on organizing the data in order to compose the research corpus derived from multiple data sources (MENDES; MISKULIN, 2017). We used Google Drive[2] to easier the material preparation, files organization, and storage as well. Then, we carry out the so-called “free-float reading”, which allows us to know the document, take initial notes, and obtain first impressions (BENITES et al., 2016). After this overview, we aimed to comprehensively and exhaustively listen and read the collected material to reach a theoretically relevant understanding of the phenomena of interest. Hence, the material is carefully reread, and we look for indications that may have been overlooked in the first reading as well as identify possible connections with the research’s objectives (BARDIN, 1979). After those processes, the research corpus begins to gain a shape to be properly explored in detail.

[2] https://drive.google.com

The *Material Exploration* followed the trajectory suggested by Minayo et al. (2009): i) identification and problematization of the explicit and implicit ideas of the text, ii) search for wide meanings assigned to the ideas, and iii) dialog between the problematized ideas. We embraced multiple secondary data from which prior emerged the respective themes inferred from our conceptual framework: Business Definition, Technology Level, Market Offer Level, and System Level. A theme may be understood as a choice by the researcher anchored by the research objectives and the trails raised by the researcher's contact with the material under investigation (MENDES; MISKULIN, 2017). The data was interpreted, codified, recorded, and analyzed by the first author into preliminary working categories of practices and then conferred using a process of abstracting and generalizing from specific observations by means of constant comparison analysis and code-recode procedures.

Based on excerpts from our research corpus, we proceeded the coding process by 1) identifying the meaning nuclei (word, expressions, phrases) associated with the context units that represent 2) underlying single activities (*e.g.*, such as understanding the trade-offs for each type of blockchain) that are grouped by subject similarity for each category in the form of a 3) composite activity (*e.g.*, comprehending the blockchain configuration) that belongs for a 4) theme (*e.g.*, Technology Level). We have descriptively coded the identified activities according to their similarities and differentiation, with subsequent reassembly by common characteristics (BARDIN, 1979; BRAUN; CLARKE, 2013). This procedure was performed by following a dynamic and inductive process, where we looked for both explicit messages and non-apparently meanings of the context (HOLTON, 2007). New rounds of codification review and refinement were carried out until reaching the final form whose decision finished with a consensus among the researchers about the codes and context units. In practice, we used ATLAS.ti[3] qualitative software to facilitate the coding rounds, allowing us to conduct a constant comparison of interpretations, codes, and field notes.

In the *Results Treatment*, we moved to the direction of drawing conclusions and elaborating an interpretive synthesis of the phenomenon. This process was iterative, continuous, and enhanced by considering the wide meanings that translate the logic behind the material (MINAYO et al., 2009). Therefore, given the identified codings, we could advance the data analysis through inferential and interpretative meanings beyond

[3] https://atlasti.com

their manifest content, but also considering what is latent. Later in this process, we engaged in tacking back and forth between empirical analysis and literature, and as dimensions, properties, concepts, and categories emerged, used literature to refine the articulation of emergent categorizations and their relationships (GIOIA et al., 2013). To complement this process, we employed a visual mapping technique (MILES et al., 1994) using networks (see Appendix D) and matrices (see Appendix E) to display the data in a systematic fashion. Findings were also discussed and verified by the other co-author in order to mitigate the bias caused by a single researcher and to reach a common understanding about the code nomenclature and categories. In doing so, we followed Guba et al. (1994), who argue that the methodological rigor of a constructivist inquiry has to be assessed by means of trustworthiness and authenticity. The complete list of codes and illustrative quotes/excepts derived from our in-depth interviews, unobtrusive observation, and document analysis can be found at Appendices E, F, G, and H.

6.2 Findings and Analysis

This section presents the empirical findings that emerged from the data collection process. However, as the market systems change over time, one can highlight that the setting of the market hereafter explained is depicted as a “snapshot of the system” which derives a particular configuration of specific elements at a given time (NENONEN; STORBACKA, 2018a). In other words, we artificially “freeze the system” at one point in what is actually a never-ending process of evolution. That said, to demonstrate how the elements addressed in our conceptual framework works occur in the context of BMI and market shaping in practice, the following cases illustrations examine two major issues: i) the market practices enacted towards market shaping and ii) the process of translation among these market practices to depict market shaping. Together, all these issues were designed to provide an explanatory account and answer our last research question: *How forward-looking firms are shaping the markets fostered by Cryptoeconomics*?

6.2.1 Which market practices are enacted towards market shaping?

By attending to investigating the market practices, we can offer a richer characterization of *what* it is that is being shaped and *how* is a certain market being

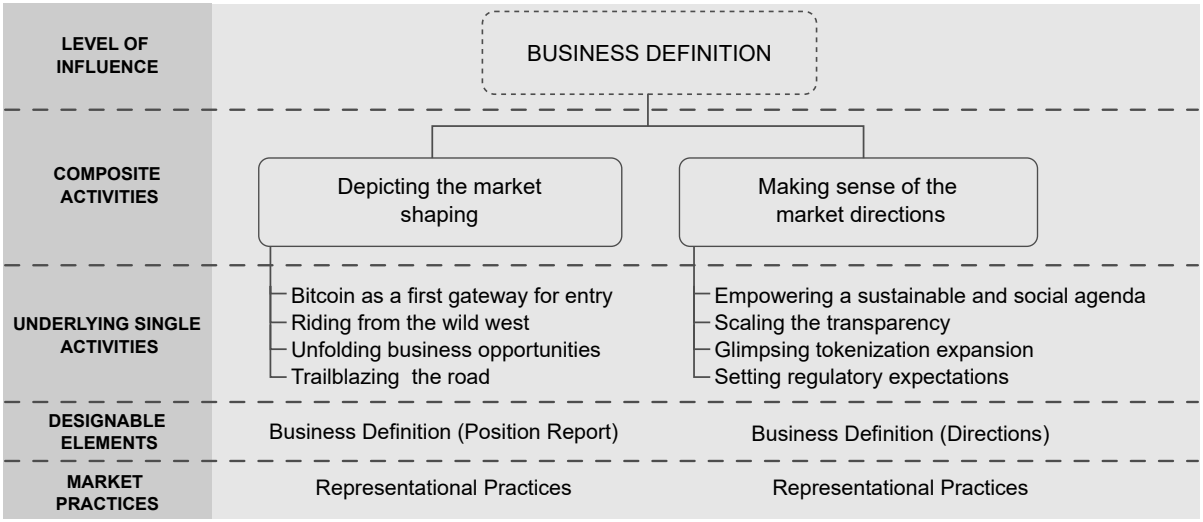
shaped (KJELLBERG; HELGESSON, 2007a). However, to capture this basic ontological stance, our focus has to be on the verbs (the *process*) rather than the nouns (the *outcome*) when studying economic organizing (LAW, 1994). Based on the theoretical elements structured in our conceptual framework (see Figure 19), we have worked abductively to analyze the practical shaping of the market around Cryptoeconomics in the light of our multiple case studies. The following pages unravel our findings in detail through the lens of four major perspectives: 1) Business Definition, 2) Technology Level, 3) Market Offer Level, and 4) System Level.

6.2.1.1 Business Definition

We present in Figure 26 an overview of the market practices associated to the Business Definition that we uncovered from our empirical study. As one can see, we have two composite activities classified as representational practices. From these two composite activities, we derived eight different single underlying activities. As suggested by Kindström et al. (2018), based on purposeful '**composite**' and '*single*' activities, we could be capable of identifying and structuring the actions performed by a firm as it develops a strategy for market shaping. This assumption is in accordance to the view of Schatzki (2005) that practices are activities that are linked together by interactions. Furthermore, for each one of the composite activities, we identified the designable elements associated with them. Beyond representing a core layer, the Business Definition poses as a designable element itself through which the company sees the rest of the layers (NENONEN; STORBACKA, 2018a). A detailed matrix representation of this analysis can be seen in Appendix E, in which we highlight illustrative quotes from in-depth interviews (*sayings*) and excerpts from the unobtrusive observation and document analysis (*doings*).

As depicted in Figure 26, we observed two composite activities performed at Business Definition, respectively: **depicting the market shaping** and **making sense of the market directions**. Both of them are in line to what Nenonen e Storbacka (2018a) states as i) the reality of the market system and ii) the possible paths to start with. In addition, they were classified as representational practices since they include activities that contribute to depict markets and/or how they work (KJELLBERG; HELGESSON, 2007a; KJELLBERG et al., 2012).

Figura 26 – Business definition analysis



Fonte**:** Elaborated by the author.

Regarding how the case studies depict the market shaping, we could notice a series of practices addressing the issue of performativity (MASON et al., 2015). Initially, the *bitcoin as first gateway for entry* denotes the bitcoin disruptive role of instigating entrepreneurs to undertake in the area. For P16 and P10, the experience of acquiring bitcoin has introduced them in the field by leading them to learn more about the subject and understand the potential of cryptocurrencies. In an interview with members of YouTube channel specialized in cryptocurrencies, P7 mentioned his first experience with bitcoin and how it triggered him to believe in the potential cryptocurrencies, including perceiving the need in which grounded the Firm B value proposition. Indeed, it is interesting to notice how fast the crypto-ecosystem has considerably grown since the bitcoin release in 2009, both in terms of capitalization as well as the number of busines models directly triggered by it. Given this wide potential of transformation, the contact with bitcoin has been serving as a first step to introduce other people into the Cryptoeconomics world. From this initial spark, they keep expanding the knowledge towards other crypto-related subjects, such as Ethereum, DeFi, tokenization, etc.

Riding from the wild west was another single activity that emerged from our research corpus. According to P8, he feels in a big “wild west” in which it reverberates from the intense and fast pace evolution that the market has been facing alongside the last years. As suggested by P7, this journey was characterized by remarkable “waves”. In the first moment, Cryptoeconomics was a subject primarily discussed by technology people. Then, in a second wave, the finance people began to see this movement

as an opportunity for developing new business, thus contributing to broadening the market. More recently, in a third wave, he noticed the coming of institutional people who are particularly characterized by a demand for regulatory advances to make the environment more secure as possible. As weighted by P13, especially in the beginning, investing in cryptoassets was extremely complicated because it required to know about the underlying technology, otherwise, chances were to fall into frauds; in his view, "*the market was not for anyone, you know, we saw the number of people who lost money in a pyramid or who did not know what they were doing*". Still about this evolution, P15 has perceived that initial radical positions (such as expecting a entire unbanked scenario or the end of fiat currencies) of early enthusiasts have been progressively overwhelmed by the establishment interests. P14 cited in this direction that several serious institutions have been launching own crypto initiatives, being an emblematic one the PayPal opening access to crypto investment for all North Americans. About this point, two questions evoked by P15 and P7 speeches appear to be insightful, respectively. The first one is the "*people-driven*" and democratic nature of the crypto market since it was initially (and for a long time) invested by retail pioneer investors instead of big companies, large banks, and institutional funds. The other peculiar one conveys the fact that, as the market evolves and matures towards a regulated ecosystem, it ends up generating several and controversial debates on the perils of overregulation in light of the principles (decentralization, low transaction costs, etc) that govern cryptocurrencies. Furthermore, Firm D has been periodically publishing in-depth reports about the market, including performance evaluations and relevant news about the movements of the market. This practice brings to their customers a big picture of significant events that have been happened on the market.

Similar to Firm D, Firm E also has been periodically publishing a market report on its website. In addition to the performance evaluation, the portfolio manager writes these reports by reverberating announcements of relevant players in the market and opportunities that they have been approaching. In this sense, companies demonstrated to be aware in *unfolding business opportunities*, due to three major reasons, in particular. The first one was the weaknesses on the market that were viable to be approached as business opportunities. According to P7, "*We started because we saw the business opportunity as a result of our 'pain'. We said, cool, if I had a website like that, I would use it, you know? We were already in the middle of crypto. Similar*

solutions already existed, but they were a little expensive". He also complemented that "*the market has grown a lot. Unfortunately, there is a lot of problems. I always see a problem with good eyes. Where you have a problem, you have an opportunity*". P8 added that he sees themselves as "*a bank that will always look at the banking sector and will point the finger at something they do wrong that we will do differently. This is in our mission, okay, in our goal, in our soul as a company*". Similarly, P12 pointed out that the reason why they exist today is due to the market need in which they focus to solve. The second reason was the downward in the Selic (benchmark Brazilian interest rate) that encourages investors seek for more risky opportunities instead of public securities. Lastly, the third reason was the participants' belief in the cryptossets potential for transformation. As stated by P1, what has more attracted her interest in blockchain was the Cryptoeconomics, given its capability to bring more radical changes. In the words of P7, the potential of cryptoassets goes beyond cryptocurrencies and, consequently, poses as another business to be explored. Despite this overall perspective of growth, interviewees (P1, P13, P14, P15, and P16) were moderate in clarifying that the market is still incipient and has a lot to mature.

From the opportunity of pioneering business opportunities through Cryptoeconomics, interviewees also demonstrated a solid vision of themselves as market shapers towards *trailblazing the road* for advancing the business around cryptoassets adoption. This perception can be interpreted, for example, by the speech of P9 clarifying that their "*goal is to continue growing and influencing the market*". In addition, P7 declared to understand that they have a very pioneering role in creating a niche that did not exist. He complemented by saying: "*I see that we have a lot of responsibility, we need to put where the bar has to be, it has to be always at the forefront, the market has to come here. And so, we are clearing, cutting weeds, but also placing the bar, demanding, of high quality. If someone can do better than me, great, but I will always know that people who try to copy us, but that is okay*". About a leadership position, P13 declared their orientation to place Firm D as a leader for access both traditional investors and specialized ones, regardless of the approach, that is, via investment funds or even through smart contracts in the future. On their Instagram, Firm D frequently celebrates the rentability achieved by their funds when compared to the competitors. This result is given by an external actor that investigates the performance of all funds in Brazil and verifies those who obtained the best returns. As reinforced by P14, "*there are*

very good people out there, but we are really groundbreaking. We were able to access the main platforms in Brazil and literally brought access to crypto investment to a mass of people". For P16, what strategically differentiate Firm E is the in-depth know-how that they acquired alongside the years since they "*arrived first*". According to him, "*they know because they were there*".

About **making sense of the market directions**, we categorized four streamlines that interviewees claimed to be possible paths. The first one relates to the capability of *empowering a sustainable and social agenda*. Both P1 and P6 mentioned noticing an investors' agenda interested in environmental issues that ally profits and a social proposition. P1 believes that in the future, a market could be created by the investors who are available to invest as long as they have an irrefutable guarantee that the money is allocated to the right place. To this end, P6 added the growing interest of "*patient capitals*" in the Environmental, Social, and Governance guarantees. Another opportunity that has been broadly discussed is the adoption of cryptoassets in underdeveloped countries (AGBO; NWADIALOR, 2020), in which P3 defined as a potentially transformational due to the institutional inefficiency of theses countries. According to P17, while other underdeveloped countries have been advancing towards this issue, Brazil, despite its emerging position, is "*very shy*" yet. Firm F, for example, has been conceiving different tokens to promote a fairer and more impactful economy, linking investors directly to impactful entrepreneurs. On their website, they highlight that, through the financial activities in their blockchain payment service, investors could earn tokens for further support projects aligned to sustainable development goals.

The second direction is still adjacent to this social agenda and represents the opportunity of *scaling the transparency*. Members of Firm A have been fostering cooperation with several development banks which collaborates to increase the potential and organize the blockchain ecosystem on a worldwide scale. As put by P6, as the transparency becomes valuable, it could be somehow monetized, and the cryptoassets could be an efficient vehicle to cope with their technology design into a regulatory framework that favors these arrangements. He complemented by pointing out how financial funds can be constantly supervised with full transparency in a trade-off that people could opt to pay less in order to expose more information. In this direction, P4 and P16 emphasized the possibility of tracking how social investments are indeed made, especially the public ones. From a technical perspective, P3 presented the

idea of auditing smart contracts "*a priori*", that is, different smart contracts are derived from a 'genesis' smart contract which follows specific trust features to be guaranteed. According to him, this phenomena could represent a "*next level of institutionality*" in which specific government responsibilities would be depicted in line with the concepts of a Decentralized Autonomous Organization (DIALLO et al., 2018).

Furthermore, *glimpsing the tokenization expansion* was found as a single activity that denotes another potential business track to be closely followed. P11 mentioned that he believes that tokenization process will remain because of its capability of bringing "*a behavior, a good, an asset, a physical right to a digital environment*". In addition, he reported being already conducting business in this direction, especially with the agriculture and agropecuary industries. According to P8, it will exist a B3 Crypto (Brazilian stock exchange) in the future, a crypto stock exchange for tokenized assets. He expects that Firm B became a complete multi-cryptocurrency bank, offering a total crypto home broker well-integrated to the traditional financial system. In this regard, high-level managers of Firm D and Firm E were invited to discuss the cryptoassets industries in a YouTube live provided by a large news media magazine. In a unanimous position, they suggested that stocks will be tokenized in the future given the gain of productivity. In addition, similar to the path of "*a priori smart contracts auditing*" previously discussed, P3 provoked by anticipating the possibility of developing a "*Token as a Service*" market. In his opinion, it will be a "*meta token*" from which derives different tokens and speeds up the auditing process since all of them have to follow the same transparency rules.

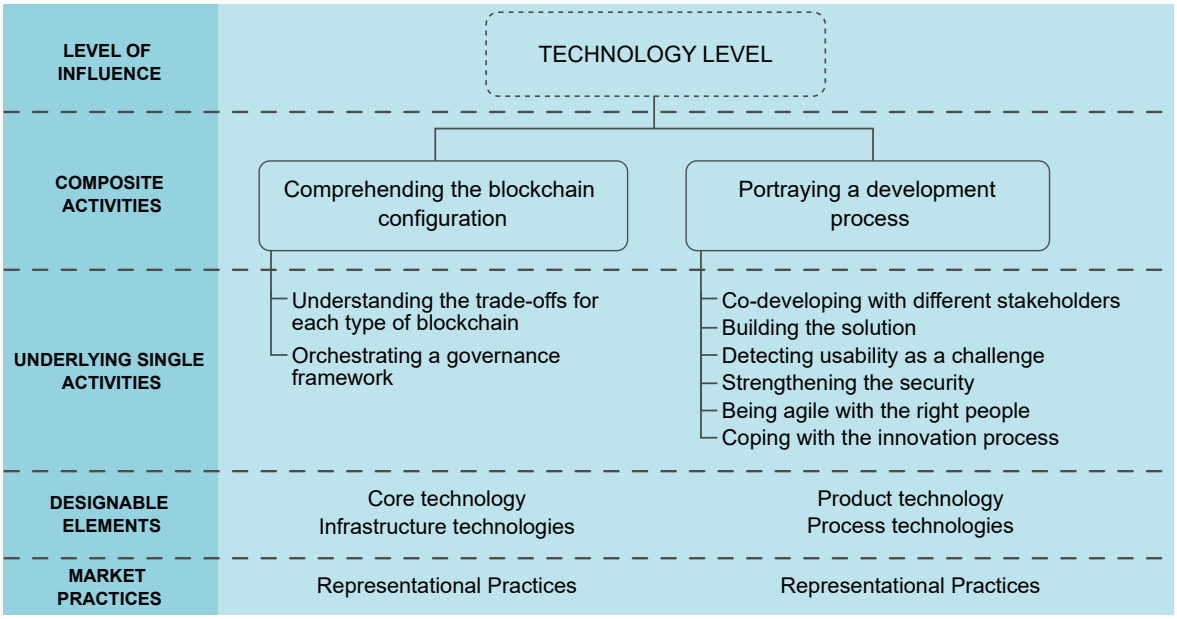
In addition to pointing promising business paths, we also observed a last activity covering the *setting of regulatory expectations*. For P13, the market of crypto investors is small and need to both mature and increase in demand to further expect some advance in its regulation. As asserted by P1, fostering a regulation around what is a token could be an appropriate first step to unleash the Cryptoeconomics power in Brazil. Exemplifying this issue, a C-level member of Firm F has pioneered the public debate with the national congress of Brazil. In a public audience, they discussed the challenges of a possible regulatory framework and the relevance of government support towards entrepreneurship in this segment. In P16's view, this regulation agenda will accelerate as soon as the regulator perceives that blockchain is a synonym of "*perfect accountability*", but, unfortunately, it could be delayed in underdeveloped countries due to possible divergence of interests. P14 and P6 weighted that, to advance this agenda, it

is necessary to articulate different public and private entities in an integrated perspective. P3 added to this discussion by arguing that regulation people have to carefully tread on this terrain knowing what they are dealing with and in partnership with the people that properly knows this field, otherwise problems may happen.

6.2.1.2 Technology Level

As highlighted by Kindström et al. (2018), the technology fulfills a role as a functional base for the creation of useful market offers. As presented in Figure 27, we categorized two composite activities in the form of representational practices related to the Technology Level; they were: **comprehending the blockchain configuration** and **portraying a development process**. While the first one is encompassed by designable elements linked to the core technology and infrastructure, the second one has a supporting role by addressing issues related to the product and process technologies. From them, we derived eight single activities that cover different issues at the Technology Level. Analogously to the Business Definition analysis, a matrix view of the Technology Level findings is available in Appendix F, including illustrative quotes and excerpts from unobtrusive observation and document analysis.

Figura 27 – Technology level analysis



Fonte**:** Elaborated by the author.

As defined in our conceptual framework, the blockchain, the token offering and its mechanism design are preponderant to crypto-based BMs. In this sense,

determining what type of blockchain to use has thus far presented as a major obstacle for decision makers (PEDERSEN et al., 2019). Aligned with this process of **comprehending the blockchain configuration**, we identified two single activities evoked by our case studies: *understanding the trade-offs for each type of blockchain* and *orchestrating a governance framework*. They have as consequences i) allowing the companies to frame the technology in a useful way and ii) increase the confidence of the outcomes, respectively. It is worth noting that this comprehension is also quite relevant for even those companies that do not internally and technically implement the blockchain, such as Firm D and Firm E. As investment funds, they have to select promising crypto projects to compose their portfolio, and, consequently, they have to be properly aware of how these companies address the blockchain technology, including the governance around it. According to P15 and P16, this in-depth analysis and diligence process is the major value proposition that they promote for their clients. In addition, it is worth mentioning that much of the recent crypto development ecosystem precisely came from new ventures that raised capital by selling tokens to a crowd of investors through Initial Coin Offering (ICO), for example. Up to 2019, ICO has raised more than $31.14 billion (MOXOTO et al., 2021).

Then, each blockchain implementation requires a carefully considered decision based on the characteristics of the individual application (RISIUS; SPOHRER, 2017). Thus, *understanding the trade-offs for each type of blockchain* (*e.g.*, scalability, capacity, latency, privacy) means that the blockchain technology is not always appropriate and is prevalent to be well-interpreted by decision makers (PEDERSEN et al., 2019). As claimed by P2, "*Projects use blockchain in different ways, so using blockchain is just the beginning. How to use blockchain? Which blockchain?*". P13, in turn, suggested that "*[...] blockchain without crypto, like an incentive mechanism, it does not make sense, because when the network is small, and you control everything via contract* [...]". Illustrating these considerations, we approach ahead of the case of Firm A which is very insightful given its public and pioneer position. As clarified by P1, their team has to initially decide which blockchain platform they would adopt. Firstly, the Corda was evaluated given its prominence in financial sector, but it was soon discarded by the team due to the presence of BM incompatibilities (*e.g.*, membership charges). The Hyperledger Fabric was also investigated, but the need to configuring a private infrastructure appeared to be risky for a proof of concept. In a given moment, Firm A also conducted a

public consultation in which the community returned with ten platforms, thus reinforcing the several trade-offs to be weighted. However, in the end, they opted by Ethereum given its capability of providing a reliable decentralized network that could enable the benefits of transparency and trust originated from its permissionless architecture. As P2 stated: "*I do not think anyone will argue that I am taking the Ethereum network to do corruption*". She also justified that, in such a moment, their assumption was that they would have few transactions, and it would be viable to reduce operational costs since they would not have to configure a private network. Nonetheless, as they opted by Ethereum, the trade-offs of time and costs associated with the transactions began to pose as expensive since the Ethereum fees have considerably increased in the last years. Being a public company, another peculiar question was about acquiring Ether (Ethereum native cryptocurrency) to pay for the transaction fees. Upon these learnings, P1 argued they would facilitate the "*public sector life*" if they build a public-permissioned network, which implies that they could combine a decentralized governance model with the permissioning from private blockchains. Given this starting point, they are currently working in partnership with several players towards the development of a blockchain infrastructure that copes with this nature.

In line with the definition of blockchain infrastructure, we also identified the need of *orchestrating a governance framework*. As introduced in our conceptual framework, blockchain governance represents a means of achieving the direction, control, and coordination of stakeholders (PELT et al., 2021). This is in accordance with the position of P5 that highlighted the importance of governance not just in terms of network and mechanism design, but also in regard to what is valid according to the involved actors. Reinforcing this point, P6 elucidated the need to defining how the tokenization process occurs, including what is being tokenized and under which circumstances it reconnects to the "*real economy*". As explained by P3, "[...] *this thing of immutability is a double-edged sword, which I think people say little about it. We have a frame that we worked on over a governance framework to deal with this story of you being able to make changes. And then when you think about it and talk, man, but then how do I do it? If I can change the trust, it becomes useless; then you need to create governance for that*". However, as discussed by P1, P2, and P5, this coordination process is very complicated given the need of acquiring acceptance of several players with different requirements, which usually demonstrate difficulties to manage the decentralization

of power necessary in a distributed model. In general, governance under blockchain is indeed challenging *per se*, since it is difficult to steer a decentralized community and promote its development without sacrificing decentralization (FAQIR et al., 2020). Firm A, for instance, has been co-leading the development of a public blockchain for the Brazilian public sector in which the governance occurs through the agreements for operation of a network in a public-private partnership with common standards.

Advancing to the last composite activity in Technology Level, that is, **portraying a development process**, we categorized six complementary single activities. These activities reveal themselves as relevant, given that they also appear as key factors in the future of blockchain-oriented software development (PORRU et al., 2017). The first single activity, *co-developing with different stakeholders*, reflects a movement of collaboration towards open innovation (CHESBROUGH et al., 2006). As highlighted by P1, "*this blockchain market is still at a time with very low competition and has more collaboration than competition, because it is one of the new markets*". This collaboration could be seen from three different angles: social, technical, and financial. Regarding the social side, P1 mentioned how committed they were to spread the project as possible (through events, public panels, etc), in which they usually faced some person trying to "workaround" their solution by pointing some barrier. These discussions were interpreted by the team as constructive feedbacks to improve the project. On the other hand, technical improvements were made by approaching a "shadowing" scheme with their partners, where they validate their solution alongside the "traditional" process of the client. For P5, they are "*paving an infrastructure road to be followed*". In addition, the public consultation made by Firm A about possible blockchain platforms poses as another example of co-development encouragement. Firm A and Firm C have made available source code of their respective projects in Github (a hosting platform for software development collaboration). This open source initiative enables the community to analyze their code as well as suggest issues to be improved. In the case of Firm D, P13 highlighted: "*since the begin, we had to build a lot and help our partners to build the structure and infrastructure so that the institutional investors could follow safely. So custody, negotiation, all of that, so the structure was prior very precarious, and nowadays it is much better. We are part of this transformation*". In the financial perspective, P13 highlighted the particularity of crypto market in which the incentive mechanisms (by offering utility tokens, for example) are vital to support the community to keep evolving.

According to him, they have to mobilize the investments entry in order to crowdfund the development of innovative projects with proper return on investment. Hence, the tokens are not only restricted to a means of payment, but they are also seen as an investment vehicle, supposed to give early adopters a compensation (DRASCH et al., 2020). In the case of ICOs, for example, Adhami et al. (2018) found that success is more likely when tokens allow contributors to access a specific service, or to share profits.

Regarding *building the solution* activity, we noticed different development processes in the case studies. Since they are part of a large holding group that maintains several other businesses (including marketing and software development), Firm C revealed that they develop all their needs "in company" with full autonomy. On the other hand, Firm F opted to outsource their software development process to focus on their business core. Firm A, in turn, defined a specific squad to develop the project. This team is composed of the five employees that conceived the project and, as clarified by P1 and P2, they see themselves in a lean startup model (RIES, 2011) inside Firm A, since they operate with a small and multidisciplinary team facing time and cost constraints towards scaling their solution. This startup model was also seen in Firm B. As stated by P7, "*I consider Firm B to be a bit 'root startup' in the sense that we did it without money and this was very good. Maybe at first you do not think so, money is always lacking, and you have to be creative*". In particular, we observed that the mobile application of Firm B in Google Play is considerably well evaluated. They account for hundreds of user evaluations and demonstrate special attention by answering positive and negative feedbacks. Also, we could notice several compliments regarding the usability and user interface, which denotes attention to the software quality process. Finally, P16 from Firm E sees themselves as "narrators" given that they do not technically develop the technology itself in company.

Approaching the four last single activities in Figure 27, we explain them as two major groups: the first one addressing *product* challenges and the second focused on *process* challenges. In terms of *product*, we perceived purposeful actions towards *detecting usability as a challenge* and *strengthening the security*. Improving the User eXperience (UX) has been pointing out as a considerable challenge due to the immaturity of consumer-ready cryptoassets products (JANG et al., 2020). This question encompasses the design of user-friendly interfaces and support for onboarding newcomers, for example (MONIRUZZAMAN et al., 2020). In P8's view, his UX with

crypto-exchanges was usually awful. From this learning, he mentioned how important it is to Firm B to keep their product "*simple, elegant, and with sex appeal*". Firm B has dedicated a supporting web page to widely explain to its customers a series of functionalities from its mobile application, such as transferring cryptocurrencies or depositing bitcoins in the e-wallet. In this discussion, P14 and P1 also elucidated an insight regarding the security trade-off. P14 cited that sometimes the security could be jeopardized in order to improve the usability. Then, P1 alleged the need of providing reasonable alternatives when, for example, the client somehow lost the private key (the cryptographic mechanism that allows access to the e-wallet). Therefore, the activity of *strengthening the security* has to walk side by side with the product usability development to also enable a reliable experience. Firm D, for example, published a post in their Instagram profile explaining how the transactions are signed in a protected manner and how independent auditors monitor this process. For P14, they were a pioneer in crypto security by addressing the best practices and actors to safe custody and store cryptoassets. P13 clarified that they would not exist today if the service of custody of cryptoassets did not sufficiently evolve as the current state achieved.

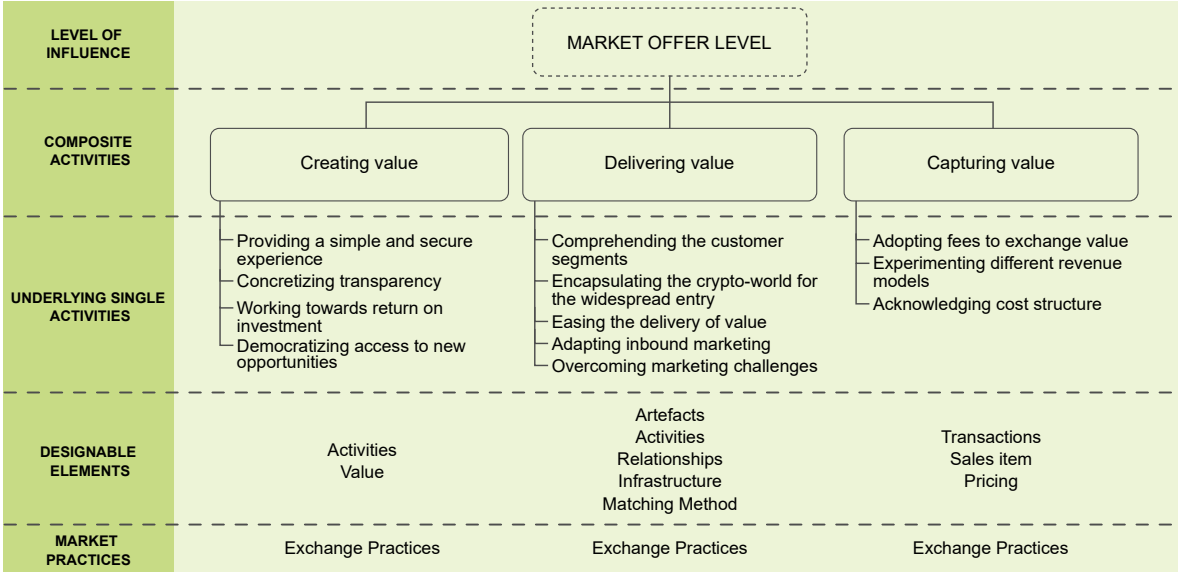
Addressing the *process* challenges, we uncovered two activities, they are: *being agile with the right people* and *coping with the innovation process*. Regarding the first one, P14 cited that "*as a founder, a leader in the company, you have to worry all the time, obsessively, with people, with people's success*". Underlining this people-driven orientation, P7 stated: "*You have to have the right people by your side. Spend time recruiting. And the interests have to be very aligned. Everyone has to have the same goal*". Complementing these ones, P10 mentioned how critical it is for them to ally quality and agile in their continuous delivery. This agile profile also can be noticed in Firm F, in which a C-level executive has the routine of periodically sharing their progress in their Instagram and blog covering both product and business incremental development. As the last activity, *coping with the innovation process* stressed the particularities encompassed in the innovation coordination. As warned by P5, "*innovation in any company is a virus, the company will react and will want to kill, it will react, it will fight that business*" and this behavior be could be seen by the people discrediting the project. However, in their scenario, blockchain has proven to be a strategic solution given that transparency was a "*pain*" for the whole Firm A. Thus, he shared the relevance of the business pulls the technology instead of the contrary as well as having a solution to a

problem and, consequently, define a owner for it. In Firm A case, the employees that proposed the solution and won the innovation contest were assigned as the "*owners*", but they also received sufficient support by the executive board to keep evolving the project. As reported by P4, this process was achieved by constantly clarifying the value proposition for the executives.

6.2.1.3 Market Offer Level

As claimed by Nenonen et al. (2019b), the aim of market shaping is to enhance the value creation (NENONEN et al., 2019b). Hence, our conceptual framework prompts the idea that a market shaping strategy involves a method of connecting sellers and buyers, demanding an interaction between actors in a market or a channel within it as a value proposition emerges (KINDSTRÖM et al., 2018). In line with multiple sources (AMIT; ZOTT, 2012; TEECE, 2010; CHAMBERS; PATROCÍNIO, 2012), our Market Offer analysis (see Figure 28) shows that firms drive their efforts of value proposition by enacting several single activities in terms of **value creation**, **value delivery**, and **value capture** through different designable elements. These activities are classified as exchange practices since they all contribute to temporarily stabilize certain conditions so that an economic exchange becomes possible (KJELLBERG; HELGESSON, 2007a). In addition, we provide in Appendix G a detailed view concerning the illustrative quotes and excerpts derived by the unobtrusive observation and document analysis.

Figura 28 – Market offer level analysis



Fonte**:** Elaborated by the author.

Concerning **creating value** composite activity, we derived four underlying single activities with diverse but complementary consequences. The first one has the consequence of overcoming a crucial problem in the Cryptoeconomics market, that is the feeling of insecurity. Towards this direction, participants shared their views on the relevance of *providing a simple and secure experience* to their clients. As said by P14, their major value proposition is to provide for their clients access to a new market in a safe, simple, and regulated way. For P13, they knew that institutional investors would come only if they provide to them a 100% safe structure for operation. Firm D has an exclusive section on its website to clarify security, regulation, and governance issues. For example, they highlight that the CVM properly regulates crypto-funds and why it is secure is to invest with them. This concern was also seen in Firm E, as one can be noticed by the following speech of P15: "*I am a house regulated by the CVM , I have other funds. My goal was to make a simple, efficient, and fully compliant vehicle with everything that has the status quo, Federal Revenue, CVM , Central Bank, everything, everything, everything*". Complementing this one, P16 highlighted their intermediary role in terms of due diligence by evaluating for their clients technical and viability issues related to the prospected projects, the team behind them, etc. Furthermore, P8 mentioned the higher compliance level that their achieved in Firm B. According to him, "[...] *opening an account at Firm B is the same as opening an account at a bank, dude. Same thing, same thing. We will ask for the usual data. We will ask for a photo, we will ask for a selfie. We will do facial recognition. We will do a background check, including police, financial, civil*".

Adding to this discussion, P2 and P3 clarified the value of the blockchain technology to make people trust "*in what has been saying*" even if they do not entirely "*believe in them*". As pointed out by P6, transparency assumes that the person believes in what has been saying. However, with their solution, people do not have to necessarily believe in what Firm A says, but, indeed, in the public network under operations that is permanently submitted to public scrutiny. This unprecedented way of *concretizing transparency* demonstrates great potential by enabling valuable social benefits to the society because it allows what P5 and P2 called "*compliance by design*", whose primary consequence is to increase trust. They also exemplified other adjacent benefits associated with this achievement, such as reducing transaction costs, avoiding operational mistakes, improving the control, and increasing the credibility of the orga-

nization. Regarding Firm F, providing transparency also has a significant value since they intermediate the support of investors in socially impactful projects. Therefore, it is relevant for them to offer for their stakeholders' transparent interactions through a reliable and secure network, simplifying existing processes, reducing costs, and increasing capital efficiency. Moreover, Firm F has an exclusive page on its website clarifying how transparency is guaranteed for the investors interested in supporting socially impactful projects. They contextualize that the investment trail is applied to all stages of the project under development that was supported, being the efficiency and reliability enabled by the tokens implemented through blockchain. As declared by P17 and manifested in the Firm F whitepaper, they aim the poverty reduction and commitment to sustainable goals upon generating impact for the minorities and, consequently, improving the local economy.

In addition to the social side previously articulated, the financial well-being is another subject greatly addressed in our findings. Our analysis showed how committed the companies are to *working towards return on investment*. As explained by P11, instead of spending money on expensive advertising campaigns, their focus was on increasing the profitability of their clients and commercial agents. He clarified that this generated "*quality of life*" helped to fidelize their customers given Firm C's clear value proposition and obstinacy at offering for their clients the freedom of exposing their patrimony to different investment opportunities. In P11's view, the major legacy that he would leave "*is to have brought two thousand families to internationalize their patrimony and to have protected these families from a devaluation of more than 60% within the period when we started until now*." Both Firms D and E have also presented this mission of exposing to their clients a diversified and profitable portfolio of cryptoassets. They have been recognized by external actors, including specialized news media, as the ones responsible for the most profitable funds in Brazil, including when compared to multi-market funds. In doing so, P15 and P16 shared that they see cryptoassets as only a new class of asset and what they do is quite similar to other long-only value investing funds with the difference that the stock market is very mature. P16 pointed that crypto-funds are more close to venture capital funds given the immaturity and risk addressed. As stated by P15, "*they will not reinvent the capital market*", so they have to deal with cryptoassets as an asset class, such as the stock exchange. In this regard, they have the responsibility of selecting, among thousand ones, the best

cryptoassets to compose their portfolio. In the case of Firm E, they apply 80% of their financial resources in the top 10 cryptoassets, while 20% is designated to other small cryptoassets or even ICOs. P15 highlighted that all this operation is in accordance with the Brazilian normative instruction CVM 11/2018. Another responsibility mentioned by P13 was their constant awareness of re-balancing their portfolio in order to guarantee its safety and do not lose any promising opportunities.

Alongside the perspective of *working towards return on investment*, interviewees also demonstrated to undertake in their respective companies the activity of *democratizing access to these new opportunities*. Under this issue, P11 stated: "*I think the biggest difference in what we are doing is bringing this democratization, allowing anyone to have access to this market. It is to pulverize access to investment instead of concentrating income in the hands of a few people*." In doing so, he added that Firm C legacy is "*to democratize the internationalization of investment that was previously only allowed for large families, for sovereign wealth funds, for family funds, for family office. And today we do that for people by starting with one thousand reais. The democratization of the patrimony internationalization is for me the greatest legacy that we can leave*". To achieve this aim, P11 declared that Firm C approaches its entire ecosystem of services/companies (a cryptoassets manager, a means of payment, and a crypto exchange) to easier and enable a consume network in which they complement each other. According to P10, this ecosystem is their primary value proposition and competitive advantage. In this regard, P12 manifested that their idea is to disseminate their value, being the profits a consequence of it. Indeed, Firm C has pioneered the use of a franchise model in the Brazilian crypto-market. In a specific Instagram post, they mention how important has been this strategy of expanding their reach. Still addressing the issue of democratization, P14 recognized that the cryptocurrencies success depends on their spread adoption and, consequently, they have the responsibility of popularizing high-quality access to crypto and make it become mainstream as an asset class. As expressed by P13 in regard to Firm D, their "*mission is to be, as I said, to be a bridge... From the traditional financial market and this new world*".

Moreover, we categorized five underlying single activities in regard to **delivering value**. Hence, to better meet the customer's needs, the marketers must divide consumers into different groups (segmentation) according to common needs, attitudes, or characteristics (consumer behavior) (CABALLERO et al., 2014). In this context, our

case studies covered the relevance of *comprehending the customer segments*. Revealing a diversity of personas, the clients of the service provided by Firm A are institutions that want to invest in something and guarantee the correct allocation of the invested resource, while Firm F has as primary beneficiaries in their ecosystem the minorities, black people, indigenous people, rural women, artisans, riverside people, affected by dams, settled and resettled, family farming people. Concerning Firm B, in turn, P7 mentioned that they conducted a mapping study in which they discerned different buyers' personas that required different approaches to deliver value for them. In P8's opinion, it is not a "common sense" in the crypto market, which makes it necessary to experiment with new options on how to behave with their customers. He also noticed a dichotomous characteristic: while Firm B is favorable to regulation backed by the governing, a part of their clients, on the other hand, is aligned to libertarian mindset and rejects the State's authority. Regarding Firm C, P11 clarified that he sees two market niches, the first one prefers small companies with higher profitability and more risk, while the second one opts by less profitability with greater institutional security. He considers that their customer personas differ according to the provided service, but they cover the overall group of clients that, from the investment dedicated to risky assets, separates a part to approach cryptoassets. In the case of Firm D, P14 affirmed that the most traditional way is separating between retail investors, high-income investors, and institutional investors. However, P13 weighted that Firm D is most suitable to the clients that comprehend cryptoassets as a long-term investment asset, instead of a means of exchange to day by day routine. P16 observed the client of Firm E changed alongside the time: "*It started with nobody. Who was the customer when we launched? Family and friends. And suspicious friends. That is the reality; there is not much secret. My uncle did not invested and look, I insisted. Who is the client now? Hedge fund managers, former bank directors...*". That said, this comprehension of the customer personas can be seen, for example, as Firm D and Firm E have launched investment funds covering different investment strategies and fees in order to approach different market segments.

Now, we discuss the activity *easing the delivery of value* which demonstrates as a relevant opportunity to comprehend the artifacts and infrastructure necessary to the customers' use of the product/service. As raised by P14, "*no matter how much people want your product, if they cannot easily access it, nobody will want it. So our obsessive focus on working with platforms, preparing our products for platforms that*

have a very high level of demand look at each of these products". To deliver this value, P13 clarified the need of internally developing tools and systems properly fit to the context of crypto, differently from the traditional market in which already has off-the-shelf software to support it. In their case, the relationship with the customers is mainly intermediated by their institutional website. On the other hand, interviewees from Firm C, Firm B, and Firm F revealed the use of a mobile application as the main artifact to load their value proposition. In P8s viewpoint, "*our value is embedded in the product, in the application itself, that it is very cohesive, very simple to use. In the functionalities of the application. So the fact that you are using bitcoin, real, and very soon, other cryptocurrencies there too. So it is all there in the hub; it is a total one-stop shop. It is a beautiful and simple to use the app, it is a one-stop shop service*." According to P7, this initial focus on the mobile application was purposeful due to the market reach. However, this decision leveraged them to implement functionalities that are better experienced in a mobile device. This mobile appeal also appeared in the speech of P12 when we asked about the technology infrastructure necessary for their clients to use their service. He answered: "*A cell phone! It's the only thing, right, that you need to be able to acquire our service. To be able to use it, then you have your cell phone, and you can already use it. Download the application, whether you are a physical or juridical person. You can make transactions, charges, transfers, all via mobile application*". In the Instagram profile of the company led by P12, we noticed several posts detailing how easy it is to accomplish specific tasks by using the mobile application. For example, in a specific post, they present a short video to illustrate step-by-step how to create an account in their application. This easing of value delivery converges with the perception of P12 in which he expressed that more than listening about their company, he wants the people using it, and this requires a strong marketing process. In regard to Firm F, P17 provided an overview about their structure to deliver value, in which accounts to a digital account (similar to a wallet) that is available in the form of a mobile application. They also offer Applications Programming Interfaces to be integrated by the clients in their commercial platforms and, consequently, use tokens from Firm F as means of exchange.

Considering that we previously discussed *what* are the clients of the investigated companies and *in which* artifact/object they 'wrap' the delivery of value, we may now go deep into *how* these clients are approached. Hence, enlightened by this opportunity of reaching different customer's segments, our case studies have been

encapsulating the crypto-world for the widespread entry to open up the market. P14 detailed that, even more than institutional and sophisticated investors, they perceived the retail investors as a great business opportunity. For this approach, they established partnerships with major Brazilian broker-dealers that scale up their reach through autonomous agents. As said by P13, his major challenge was to bring this experience of traditional markets and try to replicate it in this "*wild west*" that crypto was. To this end, they developed a higher level of governance, compliance, and security processes, because they knew that would be particularly charged for this given the crypto context. Furthermore, P14 highlighted their efforts to empower their credibility as well as speak the language of the traditional investors from which they often received good feedbacks, such as: "*I had never heard that way, for the first time, I can understand what this business is, and it has great potential. Before, I had a negative bias, but now I am considering entry*". In this regard, Firm D has conducted in its YouTube channel a live discussing with an international partner the entry of institutional investors in the crypto-market. They also exposed this action the Instagram profile as a relevant initiative that mirrors the attention of Firm D to expose for their customers a secure and regulated view of the market. About the strategies towards convincing the clients, P16 clarified how operationally efficient is the crypto fund when compared to traditional investment funds, especially in terms of liquidity. In his words, "*It is impressive for someone from the traditional market, it is impressive to see the productivity gain that exists*".

Still on this customers approach, our analysis showed an underlying single activity related to *adapting inbound marketing*. As defined by Patrutiu-Baltes (2016), "inbound marketing represents an organic marketing form, based on the close relationship between the company and its prospects or customers, who have expressed their interest in the company's products voluntarily". According to P8, "*You can do a great job, but if you do not have a megaphone, the thing does not advance*". Aligned to this perspective, he declared to develop a strength inbound marketing strategy in Firm B by writing a new blog post every week in which is designed to reach specific personas as well as be properly ranked in the search engines. In doing so, P8 underlined the relevance of a well-defined e-mail marketing automation flow, speak the customers language, and a perfect search engine optimization process to both nurtures leads and accomplish their sales funnel, especially because they focus on organic traffic. We could observe Firm B's blog and Instagram an up-to-date routine of posts, ranging from

promotions to security tips, for instance. This approach reverberates their conception of an intense inbound market to capture the clients according to the persona under the scope. The inbound marketing orientation grounded on the intensive use of social media can also be seen in Firm F and the ecosystem that forms Firm C. For instance, P17 declared that "*All of our campaigns have been carried out on social networks and in this environment, for this environment*". On the other hand, P12, from Firm C, explained that social media composed of "*light and funny content*" has been the major mechanism to reach their clients. Furthermore, he mentioned the use of digital influencers to endorse their credibility and, consequently, reach more people. As discussed by P10, their marketing process follows the conception of a "*production line*" in which they do not overburden a unique team member aiming to avoid delays and mitigate risks.

Furthermore, interviewees from studied cases demonstrated to be informed on the relevance of *overcoming marketing challenges*. In the words of P8, "*it is an extremely stigmatized marketing, we are extremely stigmatized and not taken seriously*". He declared to feel part of a highly niched market in a "*great wild west*" stage because no one has achieved a sufficient level of authority, as usually noticed in other market segments. He added that this lack of authority implies that there is no one bursting the bubble and, consequently, this opens up to a highly experimental environment. Another peculiar challenge said by P8 refers to comply the restricted advertising policies imposed by Google and Facebook to cryptocurrencies that require narrowly well-articulated campaigns; otherwise, they could be banned. By analyzing Firm B's blog posts, we observed the employment of acceptable practices for search engine optimization, such as strategic keywords, links for other posts (internal and external), and proper heading tags. On the other hand, covering the crypto-funds context, P16 noted that their major challenge is the "*distribution*", that is, building partnerships with financial platforms to distribute their investment funds. For O16, "*[...] what surprised us is how centralized the fund distribution market is. So our fund could have a much larger size if the distribution market was more homogeneous*".

Finally, we analyze ahead of the last three single activities that comprise the **capturing value** composite activity, that is, how the companies exchange some of their value proposition as profit (CHAMBERS; PATROCÍNIO, 2012). Firstly, we noticed that *adopting fees to exchange value* reveals as a usual and main pricing strategy followed by the companies. In the case of Firms D and E, for example, they charge their clients

with administration and performance fees. According to P16, their strategy is very similar to the one applied in multimarket funds. Concerning Firm C, P12 explained that their revenue is based on spread fees, analogously to the traditional banks. However, as pointed out by P11, there are products with different pricing strategies due to their liquidity, market share, or volatility. The use of spread fee was also mentioned by P7 for Firm B in which he sees promising opportunities associated with bitcoin and cryptocurrencies: "[...] *when the customer exchanges bitcoin for reais, I can have a price efficiency. I can arbitrate this price a little bit and get a fee on it. Our main recipe is this, whether in the purchase or in the sale*". Regarding Firm F, P17 also clarified that they are focusing their monetizing process with transaction fees, especially through the use of financial operations to transfer money between different banks, loans or access to credit. In addition, Firm F's whitepaper accounts with an exclusive section to elucidate the adoption of fees to operationalize their business model and how these charges may be differentiated for financing and loans.

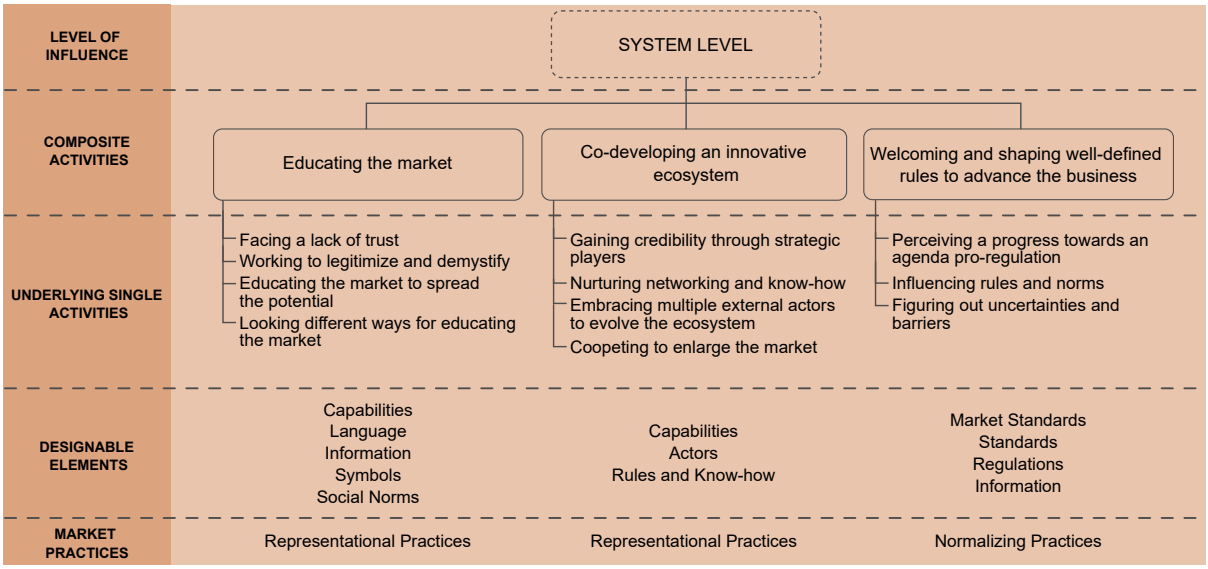
Despite the wide usage of the fees-for-service model for financial incomes, companies have shown to be *experimenting different revenue models*. Taking advantage of their traction and validation stage of the project, Firm A opted in the first moment by considering a Return on Image as a major financial income instead of charging their early adopters with fees. According to P1, the project paid for itself with spontaneous positive exhibition since they were considerably divulged by the media in the first year. P1 and P3 also mentioned that they obtained benefits by framing their project in Brazilian laws that incentivize innovation and save money, such as "Law of Good" (grants tax incentives to juridical entities that carry out research and development of technological innovation). Furthermore, Firm B has demonstrated to be pioneer and proactive in testing different strategies in their market, such as affiliated programs, equity crowdfunding, and cashback. As declared by P8, this approach has two positive effects: the first one is the psychological, given the overall public perception that Firm B is making different, that they are valuing their clients. The second one is strategic and related to the positive, massive, and public reverberation of their brand in the market and news media. Similarly, P17 said that Firm F is launching a new product, and they will adopt a rewards strategy to attract new customers. In summary, for each step that the customer accomplishes (open an account, answer research, recommend to friends, require the credit card), he/she is rewarded with a defined number of reais.

The last single activity related to value capture encompasses a concern of the companies in *acknowledging cost structure*. For P1 and P3, the major economic question for their project was about the transaction fees associated with the use of a public blockchain (in their case, Ethereum). As they would probably deal with high-value tickets, this problem could be mitigated. However, issues related to the required time to process the transactions and how to acquire Ethers in the context of a public organization remain challenging. In this sense, P14 also agreed that operational costs associated with cryptoassets management are a major question under evolution. He clarified that this issue comes from the technological novelty involved in the ecosystem, and, consequently, the community is still figuring out the best alternatives. In the case of Firm B, for example, they elaborated an entire page on its website to expose their customers to their services' fees and operational limit. In the view of P17, two economic challenges are faced by Firm F, being both of them intricate related to Cryptoeconomics. The first one is developing a bitcoin-oriented mindset in the team, given that a part of their economic fund is derived from an ICO previously performed. The second challenge comprises the required efforts to properly accomplish compliance and liquidity processes in regard to the transactions under their responsibility. Finally, P7 brought that a major difficulty for Firm B has been the issues related to the banking services, such as bill payment and bank deposit. In P7 words: "*I get almost nothing from it. It is practically zero. But I need to have this lot of things to meet the practical persona*."

6.2.1.4 System Level

The System Level is where norms and regulations set the boundaries and rules for an entire market (KINDSTRÖM et al., 2018; EDVARDSSON et al., 2014). In line with this definition, we uncovered three major composite activities, being two of them classified as representational practices and one as normalizing practices. From these composite activities, we derived a set of 13 underlying single activities approaching multiple designable elements that altogether help us to depict a big picture of the market under study. Figure 29 summarizes the list of composite and single activities that we categorized to the System Level, including the respective designable elements. For a detailed view covering the illustrative quotes and excerpts from unobtrusive observation and document analysis, see Appendix H.

Figura 29 – System level analysis



Fonte**:** Elaborated by the author.

As we can see in Figure 29, the first composite activity refers to the responsibility of **educating the market**. According to Suwito et al. (2017), educating the market is a way to communicate the product to the market, not just informing the product's benefit, but also educating the market to change their perception about the product. As a trigger for this educating process, our analysis found that our case studies have been *facing a lack of trust* that demonstrates a distinguished representation of the market to be overcome. This lack of trust by society comes, in particular, due to the frauds and cybercriminal incidents associated with cryptocurrencies (HIGBEE, 2018). Several recent studies have approached the relation adoption of Bitcoin for Ponzi fraud (VASEK; MOORE, 2018) and dark market (CUSACK; WARD, 2018; MELAND et al., 2020). These incidents have ending up eclipse and threaten the positive impact and disruptive potential of cryptoassets (beyond cryptocurrencies) for societal problems (*e.g.*, poverty, debt crises, and hyperinflation) (DIERKSMEIER; SEELE, 2018; PAUL; MICHAEL, 2018). In the view of P8, "*most of the time there is discrimination, many times we are not considered big companies, serious companies. There are companies that turn around and get involved in problems of fraud, pyramids, and that ends up tarnishing the name*." In this regard, P11 said to often hear in the beginning that their business would not work in Brazil and they would be blocked. At this time, he mentioned to saying for his co-founder: "*Either we create a model that is legalized in Brazil, or I will do something else. I do not want to do anything in Brazil by opening a company in Panama, opening in Delaware, opening a company in Romania so I can circumvent it. I want to open a*

National Register of Legal Entities (CNPJ) here in Brazil." This lack of trust was also perceived by P13: "*in the beginning, it was spending shoe soles to be heard, thus, in many places that do not even want to hear us: oh no, pyramid, I do not even want to hear*". P15 shared that, early in the beginning, a legal consultant has suggested for him to avoid put the 'crypto' term in their regulation fund in order to avoid possible problems. However, he decided to do the contrary, not only added 'crypto' to the name of the fund but also increased other 27 risk factors to make even more clear what they were proposing. P17, in turn, depicted the controversial scenario against crypto as a detractive narrative lead by conservative agents of the market, considering that money laundering, for example, is equally a large problem with fiduciary money in Brazil. He pointed that bitcoin has already proven to be able to generate value and well-being and a part of the international market recognizes this. To overcome this lack of trust, Firm F has provided on their website a section to answer Frequently Asked Questions to strengthen the company's credibility. Among the questions that they answer, some are focused on why they use blockchain, the tokens' role in their ecosystem, where the firm is headquartered, the history behind the business, etc. They also provide a page to clarify who is the founders as well as the whole team behind Firm F.

In the case of Firm A, they also faced a mix of skepticism and discredited about their proposed project. P1, P2, and P3 related different situations in which people argued: "*you are raving!*", "*but no Brazilian bank is doing blockchain experimentation on a public blockchain*", "*what is the point of you using this to improve a function of the State... the State must end*". As raised by P1 and P5, in the beginning, people usually associated their project with bitcoin, money laundering, and the problems of the deep web, including the Silk Road (the first modern darknet market), although such a problem has been unmasked precisely due to the bitcoin adoption. For P5 and P6, this discredits usually comes when people i) do not comprehend the potential addressed by technology, ii) do not see the project working indeed, and iii) do not understand that it is a long-term investment. About the relevance of putting the project in practice and clarifying the value proposition, P5 complemented: "*You break that psychological barrier that it comes to nothing, that it is only academic and theoretical projects, of low scale and low impact... If we get a case, then we enter that virtuous cycle, a simple case generates a more effective case, you can scale to a bigger one then you enter that curve of adoption*".

In the light of this challenge of overcoming a negative bias related to the Cryptoeconomics, companies engaged in *working to legitimize and demystify* their BM and, consequently, contribute to change the market perception. As exposed by P7 and P8, Firm B is dealing with an extremely niche market encompassed by "*stigmas*", which triggered them to consider the process of education and demystify as a fundamental marketing pillar. This proposition is also seen in the speech of P12 from Firm C: "*So our idea is to demystify. Our idea is this, to really make it easy, to show that cryptocurrency is something simple. Unfortunately, there is much discrimination in relation to crypto. Our idea is to bring this simplicity* [...]". In this regard, P10 said that Firm C has two challenges: "*implement, encourage and educate a new culture by talking about digital assets*" and "*demystify the past because it was kind of troubled*". P13 also advocated that this education process is fundamental to Firm D since people from Brazilian market still think that cryptoassets are only related to pyramid schemes and money laundering. We observed that Firm D has been posting on their Instagram a series of short videos in which they briefly explain questions from their followers about the cryptoassets. In this way, they may capture the attention of the customer and clarify the advantages of investing in crypto. Concerning the Firm A perspective, P1, P2, and P3 pointed that spreading their project through media articles, academic papers, and events was important to keep the project alive. As concluded by them, these initiatives were usually welcomed and produced a "stamp of acceptance" from a technical perspective, but also helped to share their achievements with the community, not only as of the project but as a government agent. In P2's words, "*I think we now have a little more legitimacy, and we are seen as less lunatic*".

This legitimization process enacted by the companies is performed by addressing two underlying activities: *educating the market to spread the potential* and *looking different ways for educating the market*. While the first one has the consequence of convincing stakeholders about the potential benefits, the second boosts the accomplishment of different communicative strategies to speak the language of them. In the light of the first activity, P7 declared: "*I have a little responsibility as a leader in this market, as a creator. So I see a lot of our responsibility to educate people, what is it, what is the concept of cryptobank, what differs from digital banking, what differs from a bank, what differs from an exchange, how is your asset safe here, or not. This whole part of education, we will get stronger now. [...] So I need to look at*

the person who does not know bitcoin, I need to teach them because it makes sense to expose themselves to it." In addition, P12 highlighted how interesting it is to show to the people that cryptocurrencies it is something that has been simplified, including the associated benefits. In his view, it is important to firstly clarify "*why*" people could enter on this market before "*how*" they could do this. Firm C has been exploring a franchise model in Brazil with dozens of partners that have to be appropriately aligned and coordinated towards approaching their clients. In an Instagram post, they highlight that their franchised agents are immersed in training camps to become qualified for personal and financial growth. In the case of Firm D, P13 and P14 mentioned to conduct an educational work in which the process of "*evangelization*" is done in partnership with investment agents from the distribution platforms. In their opinion, they have to clarify why this business has value, what is the potential for the future, and how important it is to the clients do not expose their capital more than they would tolerate to lose.

More than convincing the people about the benefits, the companies demonstrated that they has been *looking different ways for educating the market*. P2 and P3, for example, mentioned that members of their team wrote academic papers and media articles for respectful websites/magazines. P7 mentioned to explore their blog to communicate with their clients, but they are also developing a podcast to complement this front by opening the discussion with other players from economics, entrepreneurship, technology, regulation, etc. This adoption of multimedia formats to engage customers is also conducted by Firm D that has been delivering a series of crypto-based content in its YouTube channel in which they address regulatory and technical issues. This content is also diverse in terms of format, varying from in-depth interviews to short videos introducing concepts. As discussed by P13, they try to nurture good relationship with influencers and invite them to participate in podcasts, YouTube videos, and lives, for example. P13 added that they also maintain a good access to the press media by suggesting possible subjects to reverberate. In relation to Firm C, P9 declared to periodically conduct courses related to the world of cryptocurrencies, and from this knowledge, he derived an e-book to be freely shared with the community. Firm E, in turn, has dedicated in their website an exclusive page bringing several analysis in the form of documents about technological issues encompassed by the Cryptoeconomics.

As depicted in Table 29, our analysis has shown **co-developing the ecosystem** as the second composite activity that emerged for the System Level. In the form

of a representational practice, this activity helps us to provide an image representation of how the market works, including the network of actors (NENONEN; STORBACKA, 2018a). In addition, this finding is in accordance to the perspective that co-development partnerships are an increasingly effective means of innovating the BM to improve innovation effectiveness (CHESBROUGH; SCHWARTZ, 2007). Hence, this co-development process was decomposed into seven underlying single activities, being *gaining credibility through strategic players* the first one. In this direction, P7 highlighted how significant was for them the partnership with a global payments technology company that supported their credit card launching. This company announced in their website the partnership, thus highlighting the pioneer connection of Cryptoeconomics with traditional financial system in Brazil. As stated by P7, "*I think that was almost kind of a game-changer at the time for us, because it was essential to have a credit card brand for the business and a known one*". According to P7 and P8, this partnership contributed to them as a symbol of authority and helped them to be exposed in relevant media vehicles since it was a groundbreaking initiative. In the case of Firm D, P13 and P14 exemplified that the crypto-index developed by them will be adopted by one of the world's largest stock exchanges. As clarified by P14, "*having people who bring a brand like them makes a huge difference because they are products that work on a large scale and in consumer confidence, so that is why we went, dreamed high*".

Interviewees from Firm A also noticed this media exposition as valuable. P1, for example, was elected as one of the most relevant personalities in the Brazilian crypto and blockchain market by a prestigious website focused in cryptocurrencies news. However, P2 and P3 also added the relevance of their inter-locution capability with other public entities to co-develop the ecosystem. P2, for example, is a member of international working groups focused on blockchain technology in which, in her words, contributes to "*bring outside knowledge to our group*" and "*connect with other countries*". P2 also exemplified that they organized an event in partnership with the [omitted], thus serving as an "*interesting symbol that also contributes to this image*". This relationship with the [omitted] and the representativeness of the CEO was also perceived as precious in the case of Firm F, as explained by P18: "[...] *our CEO relationship with the [omitted], the access we have to the [omitted] is very important. One of the greatest assets that we have today, to achieve big agendas for us*". He also complemented that the Firm F's CEO appeared as front cover in a renowned business magazine and this achievement

unravel to him as a model to be followed, because she symbolizes "*this thing about women, 'parda', that comes with the proposal to help the unbanked, to contribute to this movement of expansion of the economy breaking the paradigm of the conventional banking economy*".

Besides, firms studied have been *nurturing networking and know-how*, in which has the consequence of increasing their knowledge and competence. We observed the co-lead of Firm A in organizing two major events in the last years approaching the use of blockchain for governments. These events accounted for the presence of different players in the ecosystem. P6 mentioned that, from these events, they could map other blockchain initiatives, understand what each player has been developing, establish partnerships, and perceive an overall demand for advancing infrastructure issues. In the view of P3, this organizational effort had a very strong symbolic and coordination value. In fact, attending events was what catalyzed P3 to idealize the idea of the project in an early moment. According to him, the spark of the idea was initially conceived after he attended in 2016 a public workshop about blockchain and cryptocurrencies organized by a technology institute. Still on this perspective of events' relevance, P11 mentioned that the highest point in their career was to represent Firm C in a worldwide event organized by a large company in the Cryptoeconomics sector in which he attended a round table with CEOs from acclaimed international companies. Upon this networking, P9 said that it was possible to nurture promising partnerships.

It is worth noticing that this networking approach was also observed in academic and scientific terms. In the P3 and P6 opinions, universities are fundamental elements to diffuse the knowledge and, for this reason, they always tried to keep a good interlocution with them, including the development of scientific papers. P8 also declared to be a believer in this academia-industry relationship, despite still being lower than expected when compared to other developed countries. Discussing the possible role of the universities in this scenario, P16 stated: "*I think the academy also has a vision of a narrator, that is cool. So, I notice a little in Brazil that everyone want that government blah blah blah, everyone wants help from someone. I do not think this crypto world has this DNA. But, at the same time, because it does not have this DNA, it has difficulties in having limits. I think the academy can try to understand the limits that make sense*".

The proactive attitude of co-development can also be noticed through the activity of *embracing multiple external actors to evolve the ecosystem*. In the case of

Firm A, they have been nurturing a strong relationship with a blockchain development program led by an international bank. From this partnership, we could observe a public software repository in Github, which is maintained by both parties in order to develop and execute different types of blockchain projects. In this repository, they clarify several technical issues that they have been working on, thus encouraging the community's collaboration. In terms of operations, Firm A also had two important public partners to execute a proof of concept. As raised by P5, this networking was a smart step because it allowed them to convince external public players to embrace the project towards a real use case and, consequently, overcome juridical barriers related to the fiscal privacy since both partners are public and the transparency is obligatory. However, if dealing with public organizations appeared useful on one hand, on the other P3 noticed on these companies an internal level of "noise" that retained some progress. Another important movement made by Firm A was to open themselves to the ecosystem. For P5, they are achieved a stage in which they had to accept outside suggestions and bring other public and private entities to co-develop the project and leverage the results. He argued that fostering the ecosystem is part of their work, and through these interactions with other organizations, they could incentive the discussion and disseminate the technology. In this line, P1 said: "*we worked as a startup, [...] it was our communication strategy, then, we have to be open to the ecosystem*". In spite of the delays associated to the Brazilian public services, P2 mentioned the need to posit themselves in this niche of transparent public spend in which has been converging to the government needs. In summary, P4 concluded: "*So we really believe that we only go further by joining forces because there are many challenges*".

By analyzing the case of Firm D, we noticed a cooperative engagement between them and their partners towards the BM operating. As discussed by P14, their service providers are seen as real partners given the business ecosystem required to maintain an investment fund, including the administrator, custodian responsible, distributors, exchanges, and auditors. For P14: "*we see these guys more as a partner than as services that we hire, because we are creating the market with these guys, and we have to, in most cases, evangelize them about the opportunity*". P13 reinforced this sense of "*building together*" by declaring: "*we have this work with them precisely to raise the control bar in order to bring institutional investors... we did a lot of it. I think we learned a lot, built a lot of knowledge about it here, and we helped the industry itself*

to develop as well". P14 complemented this speech by saying: "*we are not only hiring and paying, we are convincing them, which implies that they are taking a risk from us*". When asked about partners that they would like to have in the future, P13 mentioned the largest Brazilian commercial banks as possible prospects.

Still addressing this synergy with the partners, P7 pointed out that, being a fintech, Firm B has demanded a Banking as a Service infrastructure composed of a network of partners that have to deliver five major services: 1) a means of payment (including credit card operations, payment slips, bank deposit), 2) the bank custody and its liquidity, 4) the crypto operation, and 5) a compliance analysis process for know your customer and fraud prevention. In a complementary perspective, P17 highlighted that Firm F looks for partners both in the private sector, as civil society, and in the government. As reported by him, "*the civil society... I would say it is a big hook because they have big projects running 'at the door', some with international funding, and this helps a lot, a model that helps a lot to speed things up*".

By seeking to open new market opportunities, our case studies also revealed to be *coopeting to enlarge the market*. As defined by Bonel e Rocco (2007), coopetition emphasizes the mixed-motive nature of relationships in which two or more parties can create value by complementing each other's activity. Therefore, when deciding on coopetition, firms cooperate to achieve a certain objective and compete when sharing the gains (BRANDENBURGER; NALEBUFF, 2011). Firm B, for instance, has made an Instagram post in which they communicated the manual of best practices and self-regulation developed by the Brazilian Association of Cryptoeconomics (ABCripto). The ABCripto is composed of the major Brazilian crypto exchanges and is devoted to bringing together players from the cryptoassets and blockchain world for dialogue with the public authorities, as well as to carry out actions in favor of technological development and innovation in the sector. For P7, there is a grey zone related to competitors and partners because sometimes they have ended up using services from their competitors. He exemplified an exchange company from which they usually buy and sell bitcoin, despite Firm B also provides exchange service. Concerning the Brazilian crypto market, P8 considers it very small, niched, and in a stage in which the focus has to be on expanding the market share as a whole instead of dominating a small fraction one. In accordance with this thinking, P9 and P11, from Firm C, underlined that having a competitor is important because it raises the "*bar*" and forces the company to always reinvent itself

and want more. In addition, P16 stated that their relationship with the major competitors of Firm E is very good, and he understands that "*if exists only one crypto fund, there is no market*". Bringing another observation to this subject, P14 clarified to notice people that "*look at the competition and think 'oh no, we can not lose from the competition' but this is something that passes quickly, because the truth is that we talked a lot with the people, we know them, we have a good relationship. This market has to become big enough to accommodate all of us. So in a way, everyone is there, and when you understand that the success of this market is directly affected by adoption, the truth is that all of these competitors are working together to raise the level of awareness, to raise the adoption of crypto*".

As the companies have been coopeting to enlarge the market, they also demonstrated *being watchful of the competitors' movements*. In the opinion of P7, the market has considerably matured in 2020, especially because of the acquired lessons after the "*bear market*" crisis in 2019. According to him, between 2016 and 2018, a number of unprepared and fraudulent crypto exchanges entered the market, from which a large part broken. P11, for example, mentioned noticing in such a period the presence exchanges with National Classification of Economic Activities (CNAE) for restaurants and pet shops. Therefore, competitors ending up mature themselves as the market evolves. P7 also perceived the an intensive interest and entry of exchanges in the digital banking segment, mainly the ones that sufficiently capitalized and innovated during the last years. For P8, Firm B is well-positioned in the market and this interest of other companies to approach digital banking services is proof of that. We verified in a public and online community forum maintained by a large Brazilian digital bank a discussion about the possible support for cryptocurrencies (that they do not provide). In a moment of the discussion, a user exposed that Firm B already provides this service in Brazil. This user also clarifies the benefits of Firm B and linked a video from YouTube channel that synthesizes these advantages. In addition, P7 and P8 also demonstrated to be aware of the possible entry of worldwide international players in Brazil, which could drastically impact the market since there is no company with the size of a Binance (one of the largest exchanges in the world), for example. P7 predicted that Latin American market is still fragmented and it will further undergo some consolidation process.

P11 perceived a cycle regarding the market reaction to the Firm C: "*The first people denied our existence, then they began to fight us, comparing us with the pyramid*

and with so many things. And today, they are adopting the same model. So, every day a new competitor appears for our company, every day a model appears, and those who do not want them, go to DeFi's looking for the same thing that the guy who is with us is looking for". However, P11 considers the juridical security provided by Firm C as a valuable competitive advantage when compared to other competitors, including the recent threat of DeFi's in which has been forcing them to keep reinventing themselves. For P12 and P9, the entire ecosystem of services and functionalities that encompasses Firm B make them more complete than other competitors, which are entirely focused solely on cryptocurrencies. In doing so, P12 broadened his competitors analysis by including fintechs that addresses digital payment methods: "*Today, my main competitor is PicPay. [...] So it is whom we look at, we try to understand how it works, what went right, what went wrong*". This awarenesses to the competitors outside the crypto world was also discussed by P17 in regard to Firm F: "*it is important to note that we compete with fintechs. We compete with them. Regardless we have this focus, we compete with them. The race here is for the best technology, security, and speed*". For P13, their business is under constant threat as the technology evolves towards automatizing since their work as an intermediary could be eventually replaced. Consequently, they face the challenge of being very aware of the development advancements of smart contracts protocols and solutions for portfolio management.

As weighted by Cumming et al. (2019), several concerns have arisen alongside the cryptoassets adoption concerning security and the required regulation, especially given the very nascent nature of this technology and its potential for disruption. These concerns were also noticed in our analysis that found **welcoming and shaping well-defined rules to advance the business** as the last composite activity enacted by our case studies. As depicted in Figure 29, we derived three underlying single activities from this composite activity. These activities were classified as normalizing practices since they contribute to establishing guidelines for how a market should be (re)shaped or work according to some (group of) actor(s) (KJELLBERG; HELGESSON, 2007a). The first single activity refers to the fact that firms are *perceiving a progress towards an agenda pro-regulation*. In this sense, P13 stated that they are totally pro-regulation in terms of cryptoassets as an investment. He added that, without proper regulation, the market does not advance. P7 and P8 also mentioned to seeing with good eyes a natural movement towards regulation in spite of contradicting a

part of their customers that defend libertarian bias. According to them, proper regulation (without imposing unfeasible barriers) and legislation could provide a more secure environment for entrepreneurship as well as separate good from bad firms. For P4, P15, and P16, the current Brazilian regulation is surprisingly good, and it has been presenting signs of progress, but not so fast as it would be. In this respect, P14 complemented: "*they could walk faster? Of course, but I never heard any private sector actor in the world saying: these regulators are walking at the proper speed*". As perceived by him, regulators are usually risk-averse, being more reactive than proactive, but there is a positive predisposition of them: "*you have to understand them, their motivations, the other problems that these people have. We were trying to advance agendas with the CVM, with the Central Bank, in a year that interest rate was almost zero*". For P7, the Brazilian government has been attentive to the scenario, and the Central Bank advances on this issue are an example. P10 and P11 mentioned the Federal Revenue as a proactive organization that already defined the rules to be followed since they released in 2018 a normative instruction that clarified the operations carried out with cryptoassets, including the incidence of income tax on the capital gain. For P11, this normative instruction could be transformed in law, however, this issue is not a priority to the National Congress of Brazil in the short term given both current political instability and other urgent social priorities to the country. In terms of procedure, P11 exemplified that Firm C has an Application Programming Interface integrated with the Federal Revenue and sends the monthly-based movement to them, making it possible to collect taxes at the source and increase the clients' confidence. We observed on the Instagram of Firm C a specific post clarifying how the company is legal in the light of Brazilian law. They discussed to the normative instruction in which validates their BM. Furthermore, P17 pointed the normative instruction provided by the Federal Reserve as an important step towards legally safeguarding their operations. Moreover, he highlighted the CVM's attention to the fintechs and cryptocurrencies matter in which can be further translated into regulatory adjustments. P2, P5, and P8 acknowledged that CVM is conducting discussions to cope with the demands of the market, bringing, for example, means to mitigate frauds, regulations to crypto funds, and sandboxes to incentive innovation.

As the companies demonstrated to perceive progress towards an agenda pro-regulation, they also have been *influencing rules and norms*. P6 weighted that "*perhaps the biggest question is when the technological issue will meet the regulatory*

issue. We do not even have a dominant design in technology, and we do not have a dominant design in the regulatory issue either. I do not know when this issue will meet... I think that to be able to scale, it will depend on this moment, but we are a promoter of this process... I think our role is important in making these provocations". For P14, the crypto market is in still very subject to the presence or lack of regulations and the way in which Firm D act in this scenario is, in his words, "*by helping the actors to shape the regulation. From the beginning, we try to be very close to the CVM to understand what they already know about the subject, understand what they do not know, and try to educate them to leverage the business to the right path*". P13 and P14 explained that they always tried to nurture a good relationship with the CVM and an example of this was a YouTube live in which they invited a CVM agent to talk about the role of sandboxes for encouraging innovative solutions in the sector. P15, from Firm E, also highlighted their cooperation with the CVM by helping them in understanding possible major risks since the beginning. For P16, "*CVM is the regulator, and we will always help regulate. But we are not the ones who have the mandate to regulate the market*". In addition, P17 also declared that Firm F has a good partnership with the CVM by collaborating in their fintech working groups. Bringing another perspective, P8 highlighted the advance of a self-regulation initiative lead by the Brazilian Association of Cryptoeconomics (ABCripto) towards defining a manual of best practices to increase the market efficiency and transparency. The ABCripto is composed of the major Brazilian crypto exchanges and is devoted to bringing together players from the cryptoassets and blockchain world for dialogue with the public authorities, as well as to carry out actions in favor of technological development and innovation in the market.

However, as one can expect, the market is under constant shaping and for this reason, companies are constantly *figuring out uncertainties and barriers*. Our analysis has shown that even though perceiving progress, companies still present overall attention on the government's influence on the Cryptoeconomics market. In the view of P7, "*the government can be very good, but it can arrive and, man, you are prohibited from operating here. Which creates insecurity. There have already been congressmen, senators, talking about banning business*". Consequently, this scenario has been implying in a 'migration' of Brazilian crypto startups to other countries whose regulation framework is more clear and favorable, as noticed by P2, P3, and P7. Furthermore, according to P1, one of the first challenges that they faced was the

ones related to regulatory and legal issues. P6 acknowledged the digital government guidelines and its advances, but weighted the lack of well-defined answers in terms of cryptoassets, such as the accounting process of this type of digital asset. Hence, P3 expressed how relevant is a regulation that supports their decision making in a secure fashion. For P2, the current standards and norms are more "*explainers*" than "*enablers*" and still in a low maturity level, that is, more focused on nomenclature issues and platform comparisons. As explained by P5, it is important to objectively express what a public organization could do in terms of innovation, since it safeguards and encourages people to disrupt the processes without penalizing them or even the own organization. In accordance with that, P6 pointed their limitations as public entities going beyond technological issues. For him, "*this is the difficulty of the public sector to innovate due to the lack of instruments for contracting problem resolutions. We always have to hire a solution that we ourselves developed and specified. We have a great difficult to be able to clearly define a problem and enable a more open process, at an earlier stage, so that companies and startups can help us look for the answer to the problem. [...] I think this is a big limitation, simply because the best solution would not be the one that we understood to be the best*".

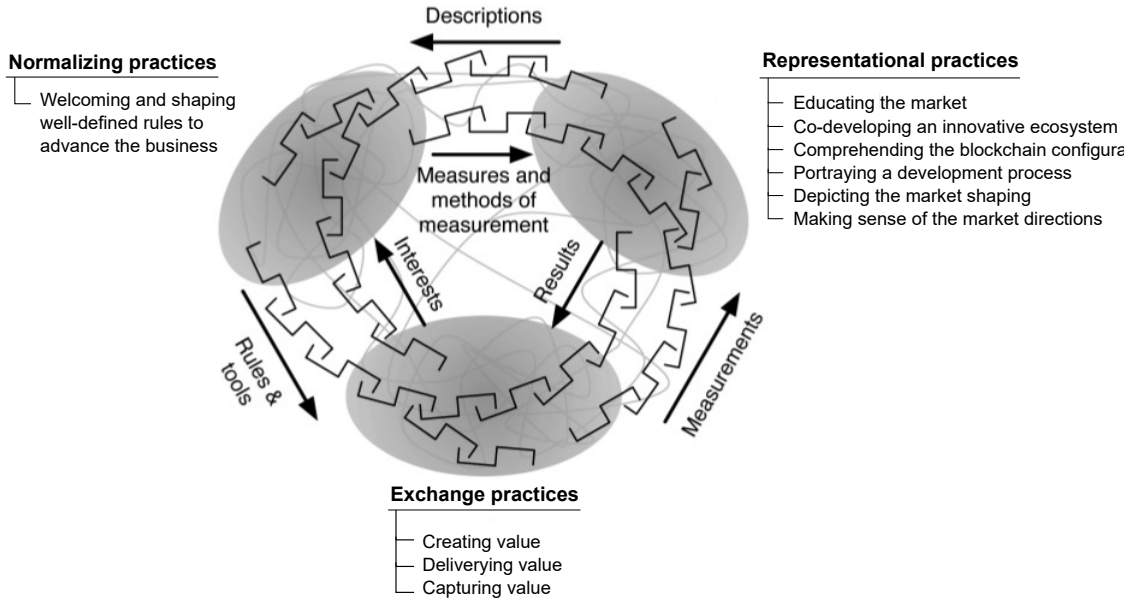
P14 explained that Firm D is in a regulated space since its foundation, which ending to influence the way in which the business is operated. According to him, this scenario "*takes a little bit of agility, it affects the business strategy a lot because the success is much more out of your hand than you would like, but you find a way to adapt"*. This capability of adaptation to the regulations advances was also noticed by P16 and P11. About the impact of regulations P16, from Firm E, stated: "*if it affects us, we have to comply. Our idea is always to have a regulated product, and it is not up to us to make the rules. It is up to us to play according to them. And if we think we can not play, we quit the game*". To this end, Firm E has the routine of publicizing monthly market reports in their website. By analyzing these reports, we could notice the feeling of the portfolio manager as the market evolves, including its perception of changes and opportunities. They very often address regulatory issues and movements of worldwide players. In addition, P11 from Firm C said: "*one can ask if the law changes and the normative instruction changes... If it changes, we adapt for it, as always. I can not work on the 'if'. I think it is a very clear, very well-defined normative instruction that ipsis literis talks about the temporary assignment of cryptoassets. We know what we are doing*".

6.2.2 How are the market practices translated into market shaping?

Compared to traditional strategic marketing where markets are seen as constant, a market shaping strategy identifies the market as alterable demanding a proactive performance that takes into account various scenarios (LINDHOLM, 2020). Hence, markets are shaped by activities performed by different actors, which intersect and affect the individual economic exchanges that take place, the images of markets that are produced, and the objectives that actors establish for themselves and others (ELLFORS et al., 2013; NENONEN et al., 2019b). Thus, in order to really understand what constitutes markets, it is of great importance to explore how these market practices are interlinked (KJELLBERG et al., 2012). Kjellberg e Helgesson (2007b) argue that the practices are linked through *processes of translations* (LATOUR et al., 1999; CALLON et al., 2002), which refers to a social process through which something, such as an idea, a rule, a text, a product, a technology or a claim is spread across time and space. A central feature of this model is the view of entities as practical outcomes, some of the more important ones being buyers, sellers, and the objects exchanged (KJELLBERG; HELGESSON, 2007a).

In line with the previous arguments, Figure 30 specifies the translations we have identified as linking market practices of different categories in the light of our findings. As summarized by Chakrabarti et al. (2013), normalizing practices set the *rules* as well as *tools* which provide the standards to which exchange activities adhere. Furthermore, representational practices provide an understanding of the *results* (another translation process), which affects exchanges. Representational practices themselves are resulting from *measurements*, a translation from actual exchange practices. However, what is measured (*measures*), and how it is measured, *i.e.*, by which *method of measurement*, are translation processes emanating from normalizing practices. Finally, such normalizing practices emanate from being involved in *description* processes of representational practices, as well as by the *interests* (*e.g.* political or economic) of exchange activities. Following (KJELLBERG; HELGESSON, 2007b), we briefly elaborate above how normalizing and representational practices may influence exchange practice. Second, we discuss how exchange and representational practices may affect normalizing efforts. Finally, we look at how exchange and normalizing practices can affect representational practice.

Figura 30 – Link between market practices through the process of translation



Fonte**:** Adapted from (KJELLBERG; HELGESSON, 2007a).

Normalizing practices may produce rules that subsequently become translated into tools that partake in exchange practices, altering the agency of a seller or buyer (KJELLBERG; HELGESSON, 2007b). As discussed in the System Level, there is an overall consensus between the interviewees that advancing the regulatory landscape collaborates to enable a legal and secure environment for both firms and consumers. In doing so, companies are eager to shape the market to improve business by overcoming the overall association that people do between cryptoassets and frauds. As noticed in the results, public and private actors of different sizes have united to create a stronger foundation and, by coopeting, advance their agendas. In this sense, our findings suggest that firms are **welcoming and shaping well-defined rules to advance the business**. Two examples of *rules* that influence the exchange practice are: the normative instructions (*e.g.*, 1888 and 555) provided by CVM about the cryptoassets' operations and the ABCripto's manual of good practices against money laundering and terrorism financing. Such rules are then translated into non-trivial altered design and communication of the firm's BM in the form of exchange practices, that is: **creating value**, **delivering value**, and **capturing value**. As one can see, a marketing shaping strategy should include comprehensive information on who the target customer is, what the company seeks to achieve in the long run, and what kind of added value the company can provide the market (LINDHOLM, 2020). In other words, companies have to cope with their market offer level and alter their agency as a seller in order to accomplish the on-going

exchange process with potential buyers in accordance with the stipulated procedures. Another chain of translations links representational practices to exchange practices and, in this regard, we approached representational practices at three levels: **depicting the market making** and **making sense of the market directions** at Business Definition; **comprehending the blockchain configuration** and **portraying a development process** at Technology Level; and **educating the market** and **co-developing the ecosystem** at System Level. As the market around Cryptoeconomics is framed through these representational practices, we may observe their influence as *results* that act upon exchange practices. For example, as the companies depicted the need to **educating the market**, they also had to adapt their strategies of **value delivery** in order to encapsulate the crypto-world for the widespread entry of different customer personas, making their product/service both valuable and easy to use.

Furthermore, normalizing practices may also be affected more directly by exchange practice (KJELLBERG; HELGESSON, 2007a). Our research demonstrated, for instance, how valuable it is to the companies to provide a simple and secure experience for their customers. This *interest*, in turn, is of particular importance because it reverberates itself in the definition of norms that aim to overcome the bad reputation attached to cryptoassets. This process requires actors who are eager to shape the market to improve business and who see the market as shapeable (LINDHOLM, 2020). From this input, companies declared to nurture a good relationship with regulatory agents by helping them to advance and co-develop the market as a whole. As we can see, ongoing exchange situations might also affect normalizing practices as this can result in support or resistance towards initiating a reform, changing laws, or generate new business standards (ELLFORS et al., 2013). In this respect, normalizing practices need to be conceived as an integral subset of market practice, deeply implicated in the shaping of markets (KJELLBERG; HELGESSON, 2007b). However, efforts to establish norms also depend on images of the situations that the norms are intended to regulate (KJELLBERG et al., 2012). We noticed, for example, that firms have been facing a lack of trust and credibility in which triggers the need to educate the market to legitimize and demystify it. This *description* unravels a distinguished representation of the market and constitutes an important input to spawn a public debate and thus lead to influence normalizing practices and, consequently, establish guidelines for how the market should work.

Shared images of the market and the associated representational practices thrive on *measures* and *methods of measurements* devised by normalizing practices (KJELLBERG; HELGESSON, 2007b). One example of how this played out was the incidence of income tax on capital gain with cryptoassets operations (for physical and juridical persons) normatized by the Federal Revenue of Brazil. This norm provides clearance on the legality cryptoassets (and the BMs around them) since they are now considered a taxable asset and, consequently, enables actors to depict the market in a reliable manner. Taken together, representational practices transform these normative inputs into images of markets that in turn, may act upon normalizing and exchange practice. Since markets are conceptual and abstract entities consisting of activities of actors, representational activities are inevitable for the formation of a holistic overview of a market by transcending and linking spatial and temporal elements of idiosyncratic exchanges (KORNEGOOR, 2015). Then, it is clear that no calculation of market size, market share, and the like can be performed without in some way measuring facets of exchange practice (KJELLBERG; HELGESSON, 2007b). Then, *measurements* enacted in the exchange practices indicate what and how actors perceive the market and, consequently, can be used to generate new images of the market (CHAKRABARTI et al., 2013). Our studied cases clarified the diverse and empowered range of value propositions that the Cryptoeconomics could create, deliver, and capture. As we discussed in the Market Offer Level, interviewees addressed several opportunities in social (transparency and freedom) and financial (return on investment and democratization of access) terms in which have the capability of disrupting traditional processes. Further, strongly believing in the Cryptoeconomics potential together with a clear business definition and fruitful network of actors were cornerstones in the view of the interviewees for deploying a market shaping strategy. Reflecting on the study results, one can conclude that companies have the capability of innovating in their BMs while shaping the market for novel value propositions.

6.3 Chapter Final Remarks

Drawing on qualitative and exploratory multiple case study (YIN, 2017; EISENHARDT; GRAEBNER, 2007), our research advanced in understanding how forward-looking firms have been shaping the markets fostered by Cryptoeconomics, including i)

which market practices are enacted by them towards market shaping and ii) *how* these practices are translated into market shaping. Regarding the data collection process, we accomplished it in accordance with the principles of triangulation by means of in-depth interviews, unobtrusive observation, and document analysis. Our research corpus included a variety of evidence and data sources which allowed us to address a broader range of historical, attitudinal, and behavioral issues. Grounded in an abductive logic (DUBOIS; GADDE, 2002), we carried out the data analysis by addressing the Thematic Content of Analysis (BARDIN, 1979) in the light of the steps of data condensation, data display, and conclusion drawing/verification suggested by Miles et al. (1994). This multi-site approach empowered us to observe, understand, and report the ways in which market practices are accomplished and describe the territories of actions, meanings, knowing, and artifacts within which they unfold (MELE; RUSSO-SPENA, 2017). Moreover, this methodology scope poses as particularly useful to holistically contrast the *sayings* and *doings* of each organization (SCHATZKI, 2005), including the material arrangements that contribute to performing markets (ARAUJO et al., 2008).

Based on multiple theoretical elements applied in our conceptual framework, we have uncovered not only the market practices, but also the context lubricated by the objects that comprise them at different levels of influence. Over this conceptualization, we could empirically evaluate how BMI might be understood as bundles of interconnecting practices that enable the business both to operate and shape the market. Echoing recent research (KINDSTRÖM et al., 2018; NENONEN; STORBACKA, 2018a; MASON; PALO, 2012), our qualitative analysis identified 41 single activities derived from 10 composite activities that are altogether linked by interactions, objects, and designable elements. By categorizing all of these activities according to representational, exchange, and normalizing practices (KJELLBERG; HELGESSON, 2007a), we extend current understanding by offering a more nuanced conceptualization about how studied firms have developed their BMI strategies for market shaping through a coordinated effort on different levels of influence.

In a market-as-practice approach, we focused on a practical constructivist position, with performativity and markets as a unit of analysis being the core assumptions (WHITTINGTON, 2006). By analyzing the empirical results, we studied market practices through the analysis of what actors do, which activities they perform and resources they use, and how they interact with other market actors, integrate resources to reach their

aims, and give sense to their actions and relations. Hence, we found multiple composite activities as representational practices comprising three levels of influence: **depicting the market making** and **making sense of the market directions** at Business Definition; **comprehending the blockchain configuration** and **portraying a development process** at Technology Level; and **educating the market** and **co-developing the ecosystem** at System Level. In terms of exchange practices, we noticed composite activities at Market Offer level related to **creating value**, **delivering value**, and **capturing value**. Finally, as normalizing practice at System Level, we identified a composite activity corresponding to **welcoming and shaping well-defined rules to advance the business**. The findings presented here contribute to extant understandings of market shaping and BMI literature by foregrounding the importance a thick texture of practices shaped by human and nonhuman connections through sociomaterial interactions (MELE; RUSSO-SPENA, 2017). By unraveling how companies frame and shape the market around Cryptoeconomics in practice, we contribute to call attention to the emergence of gaps, tensions, contradictions, and disruptions that overflow habitual and normalized performances, generating problematic as well as constructive outcomes (BARRETT; ORLIKOWSKI, 2021).

By further analyzing the empirical results, we investigated the unfolded market practices as an ongoing result of a process of translation that link normalizing, exchange, and representational practices (KJELLBERG; HELGESSON, 2007a; LATOUR et al., 1999). Our findings lead us to sees the market shaping as an active market strategy to be consciously and deliberately performed by different actors, which intersect and affect the individual economic exchanges that take place, the images of markets that are produced, and the objectives that actors establish for themselves and others. Central to this process, we elaborated a rationale for 1) how normalizing and representational practices may influence exchange practice, 2) how exchange and representational practices may affect normalizing efforts, and 3) how exchange and normalizing practices can affect representational practice. In this sense, we contribute to the literature by clarifying how the market addressed by the Cryptoeconomics is an on-going result of a network of translations that link normalizing, exchange and representational practices. Therefore, we could empirically comprehend how BMs based on Cryptoeconomics were put to work, including how they were transformed in market practices in ways that shape markets.

However, as qualitative research becomes increasingly recognized and valued, it is imperative to be conducted in a rigorous and methodical manner to yield meaningful and useful results (ATTRIDE-STIRLING, 2001). Hence, we assume that the nature of reality is not unique or objectively verifiable, but ontologically relativist and created by a constructionist interpretation (JOHNSON; RASULOVA, 2016). For this reason, we opted to delve into the methodological rigor of our constructivist inquiry by means of an assessment of trustworthiness and authenticity (SHANNON; HAMBACHER, 2014; SHENTON, 2004). Guba et al. (1994) refined the concept of trustworthiness by introducing the criteria of credibility, transferability, dependability, and confirmability to parallel the conventional quantitative assessment criteria of validity and reliability. For credibility to be achieved, we laid out in *data collection triangulation* in order to ensure the understand and confidence in the 'truth' of the findings. In addition to an extensive *use of quotes* to present clear a chain of evidence and check the interpretation against verbatim accounts, we also made *prolonged engaged* in the online social setting of interest through unobtrusive observation and document analysis that altogether resulted in a variety of evidence and multimedia data, including downloaded textual, graphical, and audiovisual files, screen captures, online interview transcripts, and field notes. To achieve transferability and enable the reader to judge the applicability of findings, we both approached a *purposeful sampling* to ensure information-rich cases for study in-depth as well as provided detailed information about the research participants, contexts, and settings. Furthermore, dependability was achieved by means of a *thick description of methods* to generate detailed descriptions of procedures including their purposes and limitations. We also adopted the use of *low inference descriptors* to check the level of agreement between data and its interpretation through checking the quotations and field notes. These sources were submitted to *code-recode procedure* and *peer examination*. In summary, the first author of this work checked the codes 2 weeks later the coding process to ensure objectivity of findings. As an external quality assurance overview, these findings were further examined by a co-author that did not participate of the data analysis. To achieve confirmability, we aimed to provide an *audit trail* about how decisions were made and the progression of the study, including a reflexive and self-critical account of this process through the use of field notes. We also adopted a *systematic coding and data reduction process* in the light of (BARDIN, 1979) and (MILES et al., 1994) to approach how findings emerged from the research corpus.

On the other hand, authenticity involves an assessment of the meaningfulness and usefulness of interactive inquiry processes and social change that results from these processes (SHANNON; HAMBACHER, 2014). Guba et al. (1994) described five dimensions of authenticity to consider when evaluating a constructivist inquiry, they are: fairness, ontological authenticity, educative authenticity, catalytic authenticity, and tactical authenticity. Regarding the fairness dimension, we had not account with *post-case interviews* or the participants' presence during the data analysis process. However, we could engage other different processes to ensure that viewpoints are represented in a fair manner, such as *data triangulation*, *prolonged engagement*, *reflexivity*, and *purposeful sampling* (JOHNSON; RASULOVA, 2016). To this end, we approached interviewees of different high-level positions within the case studies who have relevant relationship with the phenomenon, allowing us to investigate their actions from various viewpoints. Ontological authenticity was addressed as interviewees reflected on their cognitive activities and further increased their consciousness level. For instance, P17 expressed "*[...] we finance some projects and commercialize these products to increase the income of these people and consequently make one, and then came to the market shaping... Which has now caught my attention, and I have already marked it here to read about*". We also provided ontological authenticity by producing and offering a conceptual framework that sheds light on the process of BMI by deconstructing market shaping activities enacted by companies whose value proposition is fueled by the adoption of Cryptoeconomics. Educative authenticity was enhanced as we explicit the methods and the reasons for using them. This dimension was also ensured by our abductive research process grounded on the merge of contributions from practitioners and scholars to better integrate diverse perspectives on the phenomenon. Lastly, catalytic and tactical authenticity are often difficult to assess because action towards change and empowerment resulting from engagement in the inquiry process must be demonstrated (NOLAN et al., 2003). Fortunately, some of the interviewees have indicated the relevance of this study which has led to some insights. Evidence from this can be seen through the speeches of the participants about the value of this research. For example, P6 mentioned: "*I would like to thank you for the work you are doing because I think it is important to provide traction, because it converges and strengthens, and also be available in other situations. Because this partnership with the university is important.*". In this regard, P8 also stated: "*I really believe in this industry-academy relationship because here in*

Brazil it is very weak, only some sectors have this. While we see in developed countries that this relationship is intimate. So, I think it is very important that there are people in public universities trying to study this, trying to develop it. And dude, as you need to talk again, we talk". In doing so, interviewees were exposed to a conceptual framework that offers the opportunity for them to frame the market in a distinct viewpoint, moving away from the dominant logic that market are spontaneous creations (CALLON, 1998b), but, in fact, constantly constructed and reconstructed between deliberate design efforts by various organizations (NENONEN et al., 2019a).

As with any research, this empirical study has several limitations. Although the selected case studies seemed to be appropriated choices for the research aim and in line with well-established criteria, generalization in the conventional sense to a broader context is a challenge and verification becomes a key issue. Then, a limitation due to the case-based research design is that the result might not be consistent when remaking the study since there is no way to establish the probability that data is representative of larger population (HODKINSON; HODKINSON, 2001). Despite our choice of firms include an enriched mix of BMs, our sample of six companies headquartered in only one emerging market (Brazil) is considerably restricted in terms of size, value proposition, and international reach. Hence, it is worth noticing that these contextual features are of particular importance in affecting our analysis. Moreover, this research studies what practices are enacted by forward-looking firms in order to shape the market, but we do not delve into the effectiveness of these activities on business performance. Another potential limitation of this study is the fact that we accounted with a purposive and small number of participants representing each case study due to the major challenge of approaching and scheduling in-depth interviews with high-level managers and business executives. We tried to interview participants from other eight companies (including international ones), but we did not receive any feedback up to this moment. Due COVID-19 pandemic, we had to conduct interviews by video conference in which both social pressures and virtual fatigue could threat our results (EPSTEIN, 2020). In addition, the speeches quoted in this work were translated from Brazilian portuguese and, despite the large effort to be trustworthy as possible, some understandings could be jeopardized due to the vocabulary. Finally, because our research focused on the capabilities of focal market shaping firms, our sample lacks accounts from other external actors in the market systems, such as the academics, customers, suppliers, or regulators.

7 CONCLUSION

In order to achieve a competitive advantage, companies have been delving into novel BMs as a unit of innovation as well as an important source of disruption. As stated by Foss e Saebi (2018), an innovative BM can either create a new market or allow a company to create and exploit new opportunities in existing markets. In this sense, a growing stream of research (STORBACKA; NENONEN, 2011; ULKUNIEMI et al., 2015) has been increasingly acknowledging the importance of understanding how markets are being shaped today. A new market that has been impacting society is the one embedded by Cryptoeconomics and, differently from what most of the people usually assume, being used as a means of exchange is only one of the various solutions enabled by cryptoassets. Consequently, we may expect a number of promising opportunities for BMI in this sparking scenario. However, up to this moment, there is a lack of conceptual and empirical studies tackling this scope. This research gap encouraged us to conduct this study aiming to discuss how Cryptoeconomics has been practiced by forward-looking firms to shape new markets through BMI.

As claimed by Nenonen e Storbacka (2018a), definition of markets from mere exchange mechanisms to a system fostering value creation is not just semantics or purely academic debate and, like any other human-made systems, market systems can be changed by companies, governments, and even individuals. Hence, the aim of this work has been to contribute to the understanding of market shaping and BMI in the context of Cryptoeconomics, and to this end, the market practices of multiple case studies have been studied. In this view, we follow the conception that markets are thus being continuously shaped and reshaped, and our understanding of the market shaping processes involved can be enhanced by examining the activities in those markets through socio-constructionist lens (NENONEN et al., 2017; ÇALIŞKAN; CALLON, 2009). Regarding theoretical contributions, what is evident from our study is that:

- Whereas the impact of Cryptoeconomics on BMs is quite relevant and promising, the current research predominantly focuses on technological and economic issues (JIANG et al., 2020). Supported by our findings explained in the SLR, we urge to add and evolve a third stream of research concerning the business and innovation side of Cryptoeconomics;

- Grounded on the epistemology of practices (CORRADI et al., 2010; GHERARDI, 2016; SCHATZKI, 2005), our conceptual framework offers a pioneer interpretation that deconstructs and describes composite BMI activities involved in shaping markets triggered by Cryptoeconomics, differently from the metaphor that emphasizes markets as pre-existing. Hence, we add the literature by orchestrating a novel framework that broadens the conceptualization of market shaping by addressing other underlying dimensions related to BMI and Cryptoeconomics;
- By approaching market practices, we depicted an enhanced and rich characterization of what is being shaped and uncovered how the market practices are translated into market shaping raised by Cryptoeconomics. Hence, by categorizing all of these activities according to representational, exchange, and normalizing practices (KJELLBERG; HELGESSON, 2007b), we extend current understanding by offering a more nuanced conceptualization about how firms (who devised Cryptoeconomics as a tool for value proposition) have developed their BMI strategies for market shaping trough a coordinated effort on different levels of influence;
- Our multi-method design empowered us to understand and report the ways in which market practices are accomplished and describe the territories of actions within which they unfold (MELE; RUSSO-SPENA, 2017). This research protocol, which can be adapted by other researchers, allowed us to holistically contrast the sayings and doings of each organization (SCHATZKI, 2005), including the material arrangements that contribute to performing markets (ARAUJO et al., 2008).

Our work also offers managerial implications for practitioners. For example, our case studies can be said to represent different strategies for value proposition and provide insights into the BMI process. In this sense, our findings reveals that in spite of the intensive and challenging journey up to this moment, the market around Cryptoeconomics has been maturing, and expectations are positive towards business opportunities. In summary, these opportunities encompass the empowerment of a sustainable and social agenda, scaling the transparency, and expanding the tokenization process. In technology terms, we portrayed technical issues related to the relevance of understanding the blockchain configuration as well as particular issues related to the development process. In addition to comprehending the trade-offs of each type of blockchain, companies must be aware of the relevance of a governance framework to increase the confidence of the outcomes. In particular, we also found that both

usability and security requirements are quite relevant challenges to overcome in terms of product/service development. Approaching the market offer perspective, we noticed that companies delve into concretizing transparency, working towards return on investment, and democratizing financial inclusion as major enablers for value creation. These values embedded by the crypto-world are encapsulated by the firms in which seek to ease the delivery of value and, consequently, widespread the entry of different customer segments. This process of value delivery is greatly influenced by inbound marketing strategies, which face specific domain challenges. Our case studies shown that adopting spread fees is a common revenue model, however, they also demonstrated to experiment different strategies to exchange value in accordance to the specific cost structures that they address. On a systemic level, one key finding was the great emphasis devoted to educating the market to legitimize, demystify, and spread the potential of cryptoassets. This perspective is of particular importance to overcome a bad reputation and representation of cryptocurrencies which is highly associated with frauds and cybercriminal incidents. Further, we observed that companies acknowledged the significance of co-developing the ecosystem to enlarge the market and open up new opportunities for growing together. Finally, we noticed a consensus between the participants in welcoming and shaping well-defined rules to advance the business. Despite the perceived progress towards an agenda pro-regulation, we are in a stage in which the players are still figuring out the uncertainties and barriers to increase an overall trust on the market around Cryptoeconomics.

In line with the previous arguments, we may expect to help managers to portray a big picture as well as gain understanding into these ongoing and situated processes by being attuned to the implications of market practices. As raised by Mason e Spring (2011), “what is particularly insightful and helpful in building an understanding of the emergent BM literature through a practice theory lens, is the notion that not only do practices link what people think with the way they act, (and with what, whom and where) but also that practices are by nature routinized types of behavior which consist of several interconnected elements”. We argue that such frames may help in the coordination of organizational work as managers try to shape markets. In doing so, understanding new markets shaped by BMs based on Cryptoeconomics, its practices, and the relation of them with the objective of creating value may help other organizations towards adapting in their BM or even creating a new BM.

While this research advances for a situated understanding of BMI around Cryptoeconomics, and contributes knowledge related to how firms shape the markets, there are many unanswered questions and significant avenues for further research on the interplay between Cryptoeconomics, BMI, and Market Shaping. One such undertaking would be to add a longitudinal and multi-actor element to account with the perception of other external players in the market system, such as the customers, suppliers, or regulators. Moreover, our case firms were all headquartered in Brazil and naturally did not cover all industries. Despite they generate pioneer and insightful findings towards a emerging market context (RAMAMURTI; SINGH, 2009), it could be useful to conduct a systematic comparison between market shaping carried out in different countries, including successful and failed attempts that would be derived as lessens learned. Furthermore, it would be valuable to also study the market shaping quantitatively by approaching, for example, the effectiveness of the practices on business performance. Another fruitful initiative would be to investigate BMs on specific market segments in which the Cryptoeconomics has been disrupting, such as financial borrowing and lending. In addition, the research avenue for evaluating the potential of cryptoassets to public and government initiatives reveals to be very promising. Finally, future research could investigate the adaptation of our conceptual framework to cope with other emerging markets instead of Cryptoeconomics, such as Sharing Economy (PUSCHMANN; ALT, 2016) or Circular Economy (KORHONEN et al., 2018).

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APÊNDICE A – FRAMEWORK RECONFIGURATIONS

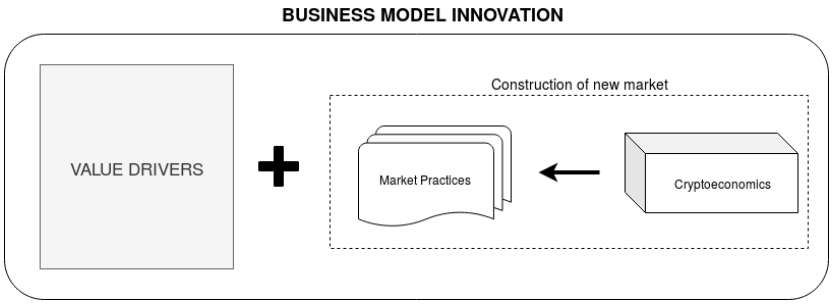
SHAPING CRYPTOECONOMICS AS A NEW MARKET THROUGH BUSINESS MODEL INNOVATION

Doctoral Program in Business Administration

State University of Ceará

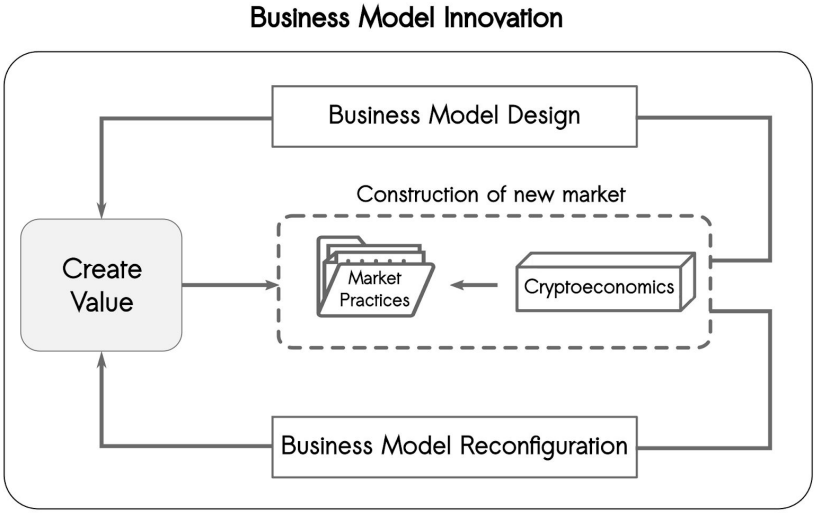
VERSION 1

Highlight: Approaching the concepts of market practices and value drivers.



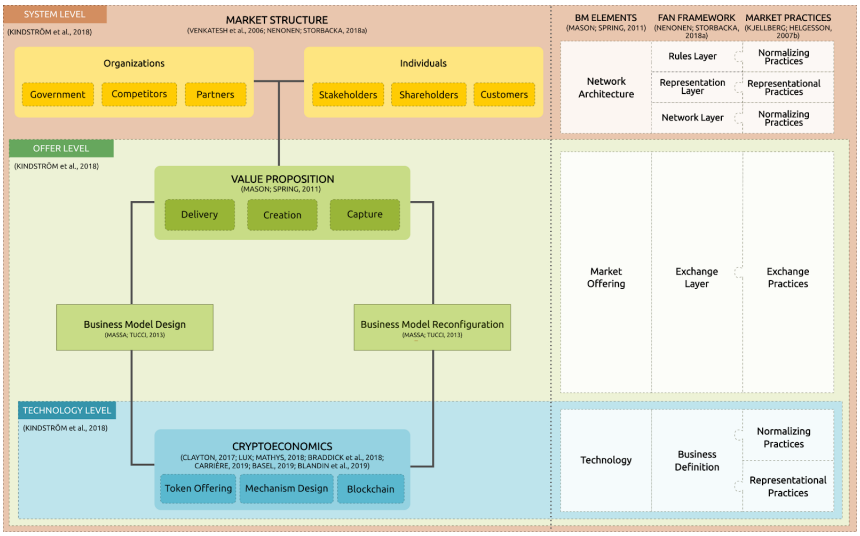
VERSION 2

Highlight: Conceptualizing the different pathways for value creation.



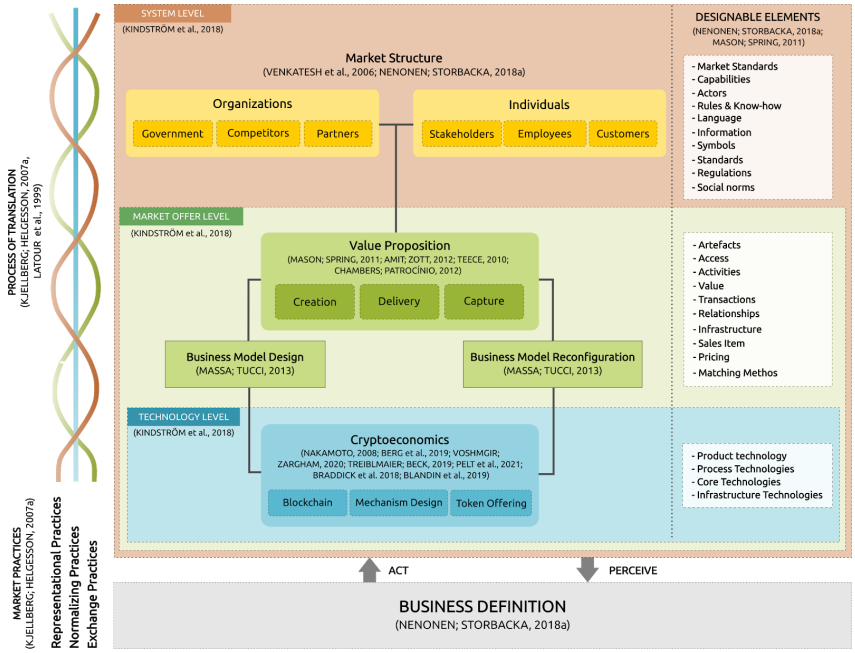
VERSION 3

Highlight: Expanding the framework to encompass different levels of shaping.



VERSION 4

Highlight: Clarifying the process of translation and the designable elements.



APÊNDICE B – INVITATION E-MAIL

INVITATION E-MAIL

SHAPING CRYPTOECONOMICS AS A NEW MARKET THROUGH BUSINESS MODEL INNOVATION

Doctoral Program in Business Administration

State University of Ceará

Subject: Inovação & Criptoeconomia - Case **nome da empresa**

Olá, ***nome do entrevistado***. Tudo bem?

Sou o prof. Allysson Allex Araújo (Universidade Federal do Ceará). Atualmente estou pesquisando sobre Inovação em Modelos de Negócios baseados em Criptoeconomia. Tal pesquisa faz parte da minha tese de doutorado pela Universidade Estadual do Ceará.

Aprofundando-se na área, tive a oportunidade de identificar a ***nome da empresa*** como um relevante *case* brasileiro a ser estudado devido à forma como vocês difundem e viabilizam a adoção de criptoativos no mercado. ***Inserir conteúdo específico que denote que conhece o entrevistado e a empresa***.

Dessa forma, gostaria de saber se seria possível conversarmos um pouco sobre a história da ***nome da empresa***. Tal conversa ocorreria via videoconferência e poderíamos agendar **qualquer** dia/horário de sua preferência. Destaco, também, que tanto sua participação, quanto a identificação da empresa serão devidamente anonimizados na nossa publicação.

Por fim, saliento que a oportunidade de aprender mais sobre ***nome da empresa*** e, em especial, obter a sua opinião enquanto ***cargo do entrevistado***, seriam **fundamentais** para o desenvolvimento dessa pesquisa que objetiva, de forma pioneira, investigar como a Criptoeconomia pode potencializar o surgimento de modelos de negócios inovadores.

Agradeço sua atenção e coloco-me inteiramente à disposição para eventuais esclarecimentos. Sigo na expectativa do seu contato. :)

Atenciosamente,

APÊNDICE C – INTERVIEW GUIDE

INTERVIEW GUIDE

SHAPING CRYPTOECONOMICS AS A NEW MARKET THROUGH BUSINESS MODEL INNOVATION

Doctoral Program in Business Administration

State University of Ceará

STEP #1 - BRIEFING AND SIGNING TERMS

STEP #2 - BACKGROUND CHARACTERIZATION

STEP #3 - OPEN-ENDED QUESTIONS

STEP #4 - CLOSING INTERVIEW

STEP 1 - CONFIDENTIALITY AGREEMENT

TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO (TCLE)

SHAPING CRYPTOECONOMICS AS A NEW MARKET THROUGH BUSINESS MODEL INNOVATION

Doctoral Program in Business Administration

State University of Ceará

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1. Sobre o estudo?

O objetivo dessa pesquisa é investigar como a Criptoeconomia tem alavancado o surgimento de novos mercados através da inovação em modelos de negócios. Os resultados permitirão compreender a dinâmica desses mercados, as práticas exercidas por tais empresas e a relação com a criação de valor, possibilitando, assim, contribuir para outras organizações identificarem a Criptoeconomia como uma ferramenta para inovação seus respectivos modelos de negócio. Este estudo faz parte de uma tese de doutorado vinculada ao Programa de Pós-graduação em Administração da Universidade Estadual do Ceará (UECE).

2. Quem pode participar?

Pessoas com mais de 18 anos que exerçam cargos estratégicos em empresas cujo modelo de negócio explora a Criptoeconomia.

3. O que será solicitado?

Após seu consentimento para participar da pesquisa, serão solicitados inicialmente dados que caracterizem o seu perfil acadêmico e profissional. Em seguida, serão realizadas questões abertas que ajudem a retratar, na prática, como a sua empresa explora a Criptoeconomia como ferramenta para inovação no modelo de negócio e moldar o mercado.

4. Quais são seus direitos e responsabilidades ao participar do estudo?

A participação nesta pesquisa não implica riscos para você. Sua participação é completamente voluntária e anônima, portanto, não solicitaremos dados pessoais.
- Você tem o direito de se recusar a participar.
- Você pode parar a qualquer momento, mesmo depois de dar permissão.
- Você não precisa dar um motivo para abandonar a pesquisa e interromper sua participação não trará nenhuma consequência.
- Se você iniciar, mas encerrar sua participação antes de concluir a pesquisa, todos os seus dados serão descartados para análise.
- Você tem o direito de conhecer os resultados gerais da pesquisa, que será divulgada por meio do projeto que será realizado.

Os dados serão armazenados eletronicamente, com acesso restrito a equipe de pesquisa, sendo esses dados obtidos, processados anonimamente, atribuindo um código pessoal que não permite a identificação do participante. Garantimos que o tratamento dos seus dados será tão cuidadoso quanto na coleta inicial. Os resultados do estudo serão utilizados apenas para fins científicos, divulgação em conferências e criação de publicações científicas.

5. Remuneração
Você não receberá nenhuma remuneração por participar deste estudo. Nem em caso de evento adverso.

6. Riscos
O único risco associado à participação neste estudo é um pequeno grau de envolvimento emocional ao responder às perguntas. Nesse caso, você pode parar de responder e retomar quando julgar apropriado ou, definitivamente, parar de participar.

7. Gravação da imagem e voz
O procedimento de avaliação que será realizado, estará sendo gravado para que seja possível fazer a análise qualitativa e em profundidade das falas. Sua utilização será apenas para fins acadêmicos e não será compartilhado com terceiros sob nenhuma hipótese.

8. Detalhes do contato

Este estudo é realizado pelo aluno Allysson Allex de Paula Araújo, doutorando em Administração pela UECE e orientado pelo prof. Jerffeson Teixeira de Souza (UECE).

Se você tiver perguntas ou comentários sobre a pesquisa, envie um e-mail para o nosso endereço de correspondência: allysson.araujo@crateus.ufc.br. Se posteriormente a realização da entrevista você tiver quaisquer comentários ou preocupações relacionadas à condução da pesquisa ou perguntas sobre seus direitos ao participar do estudo, poderá entrar em contato conosco via e-mail.

Entendo que toda e qualquer informação prestada por mim no decorrer da entrevista pode ser utilizada na escritura de relatórios referentes à pesquisa. É acertado entre mim, signatário(a) deste termo, Allysson Allex de Paula Araújo, que a identificação enquanto entrevistado(a) será anonimizada.

Fortaleza (CE), _____de _____de 2020.

_____

Assinatura do Entrevistado

NON-DISCLOSURE AGREEMENT

SHAPING CRYPTOECONOMICS AS A NEW MARKET THROUGH BUSINESS MODEL INNOVATION

Doctoral Program in Business Administration

State University of Ceará

Pelo presente termo, o signatário, Allysson Allex de Paula Araújo, professor da Universidade Federal do Ceará (UFC) e doutorando do Programa de Pós-graduação em Administração da Universidade Estadual do Ceará (UECE), em fase de pesquisa de campo, se compromete a manter a identificação do participante em total anonimato na redação final dos relatórios.

Fortaleza (CE), _____de _____de 2020.

_____

Allysson Allex de Paula Araújo
Doutorando em Administração
Universidade Estadual do Ceará (UECE)

STEP 2 - BACKGROUND CHARACTERIZATION

SHAPING CRYPTOECONOMICS AS A NEW MARKET THROUGH BUSINESS MODEL INNOVATION

Doctoral Program in Business Administration

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1) Name

2) Higher degree (no graduated, graduated, master, PhD)

3) Under graduation course

4) Graduation course

5) Professional experience in cryptoeconomics and blockchain market

6) Years in the firm

7) Current role in the company

8) Company founding year

9) Number of employees

10) Previous job before to work with cryptoeconomics and blockchain

STEP 3 - OPEN-ENDED QUESTIONS

SHAPING CRYPTOECONOMICS AS A NEW MARKET THROUGH BUSINESS MODEL INNOVATION

Doctoral Program in Business Administration

State University of Ceará

ICEBREAKER QUESTION

Please, tell me about your company, your role within your company and your first contact with Cryptoeconomics.

BUSINESS DEFINITION

1) Why did you enter this market?

2) The business model of your company was born as a new one or it was adapted from a previous one?

3) How do you see your company innovating in terms of business model?

4) How has the adoption of Cryptoeconomics impacted your business model?

5) Which elements have you learned as critical ones towards a business modelling based on Cryptoeconomics?

6) What have been the main strategic drivers for the market to be created?

7) How has the market changed since you started? How has this affected your company? How have you adapted to cope with these changes?

8) On the other hand, how the market has reacted to company's propositions?

TECHNOLOGY LEVEL

9) What kind of technological decisions have you taken so far that have been shaping the market?

10) What is the role of blockchain, token offering and mechanism design in your business?

11) What are the underlying technological resources you need to deliver your value proposition?

12) How this technological development process is conducted?

MARKET OFFER LEVEL

13) Who are your customers? How do you reach out to them?

14) What value do you deliver to your customers?

15) How do you deliver this value?

16) How do you capture some of this value as profit? How is this pricing process defined?

17) In what ways are your customers active in “marketing” your products further?

SYSTEM LEVEL

18) How know-how is retained, maintained and developed in your firm over time?

19) Who are your main competitors? What is your relationship with them?

20) Who are your key partners? What is your relationship with them? What other partners do you would like to have in your network?

21) What is your relationship with government or public organizations?

22) What symbols (including events, awards, media, and associations), if any, do you perceive as valuable for your company?

23) What kind of standards, regulations or norms, if any, have you noticed being formed by the actors in the market?

24) How do you see your firm influencing the market configuration?

STEP 4 - CLOSING INTERVIEW

SHAPING CRYPTOECONOMICS AS A NEW MARKET THROUGH BUSINESS MODEL INNOVATION

Doctoral Program in Business Administration

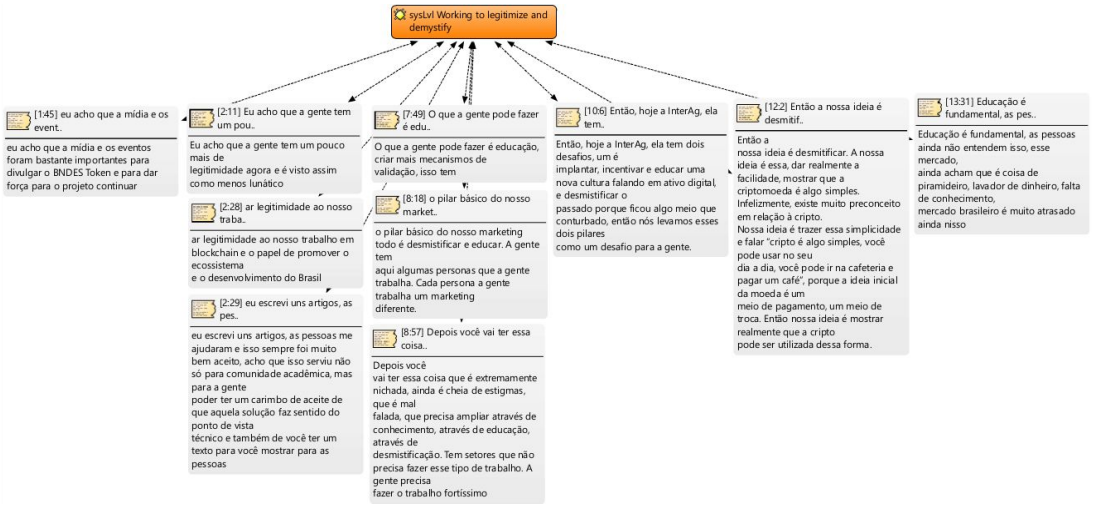
State University of Ceará

Is there anything more you would like to add?

I'll be analyzing the information you and others gave me and defending the final version of the dissertation in five months. I'll be happy to send you a copy to review at that time, if you are interested.

Thank you for your time.

APÊNDICE D – EXAMPLE OF NETWORK OF DATA



APÊNDICE E – BUSINESS DEFINITION - FINDINGS MATRIX

Market Practices	Composite Activities	Designable Elements	Underlying Single Activities	Consequences	Illustrative Quotes from In-depth Interviews (*Sayings*)	Excerpts from Unobtrusive Observation and Document Analysis (*Doings*)
Representational Practices	Depicting the market shaping (NENONEN; STORBACKA, 2018a)	Business Definition (Position report)	Bitcoin as a first gateway for entry	Demonstrates the unique role of bitcoin as a trigger to the development of novel business models	*"I bought a small portion of bitcoin at [omitted] and sent it to my wallet on my cellphone, and this experience was enjoyable. So the use of technology, I said, is going to be revolutionary." (P16)* *"Before that, I started attending several events on blockchain and found out that I had some friends who were 'desperate' for bitcoin, I did not even know they invested, and there was also another group within the bank that I ended up discovering that had a group that already liked this subject."* (P3) *"So, in 2016 I had my first experience registering in the [omitted], buying one hundred reais, just a fraction of bitcoin, so that was my first experience."* (P10)	In a interview with members of YouTube channel specialized in cryptocurrencies, P7 has mentioned his first experience with Bitcoin and how it triggered him to believe in the potential cryptocurrencies, including perceiving the need in which grounded the Firm B value proposition (content extracted from a YouTube video).
			Riding from the wild west	Illustrates the market journey of maturity through emblematic episodes	*"But even so, what I feel is that it is a big wild west, it is a fucking wild west in every way,"* (P8) *"When I entered this world, it was "fuck the banks", total anarchy, "the dollar will end"... You know, much nonsense. But then I looked like this, I said, man, this here, as my company's partner likes to say: the genius is out of the bottle, the genie came out of the bottle, there is no way to hold it. And then the establishment realized that. And what is the establishment? Then I divide it into two parts: governments and corporations."* (P15) *"[...] several very serious institutions started paying attention to crypto and launching initiatives, several household names in addition to Fidelity, right... What crowned recently a few weeks ago was PayPal opening access to crypto investment for all Americans."* (P14)	Firm D has been periodically publishing an in-depth report on its view on the market, including performance evaluations and relevant news about the movements of the market. This practice brings to their customers a big picture of significant events that have been happened on the market (content extracted from Firm D website).
			Unfolding business opportunities	Discloses that, in spite of new, the market presents several business opportunities	*"[...] I entered this only as a gateway to understand the technology and see potential and see that cryptoassets is much bigger than cryptocurrencies. And in fact, it is another business, it is another business."* (P5) *"Bearing in mind that the downward trend in the Selic rate continues, weakening of the local currency, so any product that offers, for example, 3% in the dollar is something surreal already within the market."* (P11) *"[...] this blockchain market is still at a period in which competition is very low and has more collaboration than competition because it is one of the new markets."* (P1)	Similar to Firm D, Firm E has been also periodically publishing a market report on its website. In addition to the performance evaluation, the portfolio manager writes these reports by reverberating announcements of relevant players in the market and opportunities that they have been tackling (content extracted from Firm E website).
			Trailblazing the road	Suggests the company's vision as a market shaper	*"So, I understand that we have a very pioneering role in the beginning. Oh man, this is cool, let us do it. We run, run, run, and do it. Until today we work like that, me and our CTO, mainly. [...] We are kind of creating a niche that did not exist."* (P7) *"So our goal is to continue growing and influencing the market"*. (P9) *"We want to place ourselves as a leader in this, so, both in terms of access by traditional investors, and the ones who are not specialized nerds who know how to operate a crypto portfolio, who will be able to buy safely, not fall into a pyramid, and such. We want to be that main alternative, whatever the way, today the exposure via a fund, tomorrow things can change, suddenly there will be smart contracts in the middle, we want to be part of this application."* (P13)	On their Instagram, Firm D frequently celebrates the rentability achieved by their funds when compared to the competitors. This result is given by an external actor that investigates the performance of all funds in Brazil and verifies those who obtained the best returns. This position strenghtens the leadership position achieved by Firm D (content extracted from Firm D Instagram).

Market Practices	Composite Activities	Designable Elements	Underlying Single Activities	Consequences	Illustrative Quotes from In-depth Interviews (*Sayings*)	Excerpts from Unobtrusive Observation and Document Analysis (*Doings*)
Representational Practices	Making sense of the market directions (NENONEN; STORBACKA, 2018a)	Business Definition (Directions)	Empowering a sustainable and social agenda	Catalyzes groundbreaking strategies to deliver social value	*"So I think you have a maturing of the financial market that I think happens on a global level, with capitals that are more patient capitals, capitals that are so interested in investing in things with purpose... There is this ESG agenda, you know, environmental, social, and governance. And I think it is interesting that in the order of these letters, the environmental agenda in the financial world happen first"* (P6) *"I would say that this environmental agenda, I think it is the one that has the most potential for use because I think it is the one that is growing the most in the world in terms of the volume of resources to be invested."* (P1) *"The underdeveloped countries are running faster after adopting cryptocurrency alternatives as an economic model, and this is a worldwide movement, a pity that few people read about it are interested in Brazil, I suppose, still due to the negative issue of the history of cryptocurrencies, that there must be a palliative deconstruction [...]"* (P17)	Firm F has been conceiving different tokens to promote a fairer and more impactful economy, linking investors directly to impactful entrepreneurs. Though the financial activities in their blockchain payment service, investors could earn tokens for further support projects aligned to sustainable development goals (content extracted from Firm F website and Instagram)
			Scaling the transparency	Sparks a novel way to deliver transparency to the society	*"Then I think that may be a market for a product like this, as a transparent investment or maybe we can give value to transparency, monetize transparency in some way. And maybe cryptoassets is a vehicle for that if we can marry the design of technology as a regulatory design that favors an arrangement like this"* (P6) *"I give you a smart contract that you do not need to see the other smart contracts. Just look at that one. That is different. So I do not even need to audit smart contracts anymore. I just need to audit only one, and all the other derivatives have the characteristics of confidence from the one whose it is indicating."* (P3) *"[...] bringing the government closer to a DAO, not a DAO at all, but some things, mainly in the trust."* (P3)	Members of Firm A have been fostering cooperation with several development banks. This initiative collaborates to increase the potential and organize the blockchain ecosystem on a worldwide scale (content extracted from a public interview of P1 to a news media website and a presentation file ministered by P3 in a public innovation event).
			Glimpsing tokenization expansion	Points a business track that has been seen as disruptive	*"[...] a token as a service, a token from us, from which you could derive other tokens in such a way that yourself without knowing the specific token's smart contract, you know a priori, by the generic token that that specific token follows, the minimum transparency rules." (P3)* *"[...] We are an ecosystem of cryptoassets, and our vein is the intelligence to understand what the consumer needs and what we believe in most is tokenization. Because I think what will remain after this fever everything is tokenization. Because tokenization is the ability to bring a behavior, a good, an asset, a physical right to a digital environment."* (P11) *""I think there will be a B3 Crypto, a crypto stock exchange for tokenized assets. I imagine our firm as a complete bank offering a complete multi-cryptocurrency bank, offering a total crypto home broker, offering a complete crypto investment menu along with the investment traditional financial system, like a very well integrated thing." (*P8)	Members of Firm D and Firm E were invited to discuss the cryptoassets industries in a YouTube live. In an unanimous position, they suggested that stocks will be tokenized in the future given the gain of productivity (context extracted from a news media website and a YouTube video).
			Setting regulatory expectations	Defines important steps that are expected to advance the market	*"[...] if you ask, choose something that can make this Tokenomics groundbreak in Brazil? It is to have some regulation that defines what the token is and what regulations are about the token."* (P1) *"To be able to make this possible in the world from a regulatory point of view, and also from a pure infrastructure point of view, there are challenges. We have to work with governments and partners in several countries for this to happen, not only in Brazil but in the United States, Bermuda, Cayman, and wherever else we dream of."* (P14) *"[...] how do we articulate with these government entities not only to promote applications and use technology to solve their problem but mainly how all these solutions will be integrated in the future because they will have to talk."* (P6)	A C-level member of Firm F has pioneered the public debate with the national congress of Brazil. In a public audience, they discussed the challenges of a possible regulatory framework and the relevance of government support towards entrepreneurship in this sector (extracted from Brazilian national congress website).

APÊNDICE F – TECHNOLOGY LEVEL - FINDINGS MATRIX

Market Practices	Composite Activities	Designable Elements	Underlying Single Activities	Consequences	Illustrative Quotes from In-depth Interviews (*Sayings*)	Excerpts from Unobtrusive Observation and Document Analysis (*Doings*)
Representational Practices	Comprehending the blockchain configuration (PEDERSEN et al., 2019)	Core technology Infrastructure technologies	Understanding the trade-offs for each type of blockchain	Allows to frame the technology in a useful way	*"Are we going to upload a network that has already gone up, a vacant infrastructure, so for me, our decision for the Ethereum at the first moment to prove the concept seems obvious."* (P1) *"More people started doing things in Fabric, and also, for large corporations doing in Fabric is kind of more obvious because you have, "oh it is not open source", so, there is the model that has been created, like this, it is open source, but there is big tech here to support you."* (P1) *"So I came to this conclusion: indeed, blockchain without crypto, like an incentive mechanism, it does not make sense, because when the network is small, and you control everything via contract, as the business starts to grow for thousands of nodes and thousands of participants, you will not be able to enforce the contract on everyone, and it is good that you have a mechanism that aligns the interests."* (P13)	Firm A has conducted a public consultation to analyze possible platforms to be used in their solution. According to the result publicly available, different platforms were suggested by the community with different trade-offs. However, in the end, they opted for the Ethereum ecosystem since it offers the possibility of using a public network with many nodes distributed around the world and creating permissioned networks (content extracted from Firm A website).
			Orchestrating a governance framework	Increases the confidence on the outcomes	*"Now, the main thing about this project is also to define governance. Not just the governance of the network, navigation, the consensus mechanism, but the governance of what should or should not be applied in this network, precisely avoid this hype, of wanting to put something that another solution might be straightforward, cheaper, and more effective."* (P5) *"Because there is an aspect of the blockchain, that is this thing of immutability is a double-edged sword, which I think people say little about it. We have a frame that we worked on over a governance framework to deal with this story of you being able to make changes. And then when you think about it and talk, man, but then how do I do it? If I can change the trust, it becomes useless; then you need to create a governance for that."* (P3) *"[...] it is not enough for you to have the technology, you have to develop the ecosystem, you have to define how the tokenization process occurs, what is the tokenization process that is happening, what is the asset that I am tokenizing under what circumstances, how does this first mile take place here, and the edges, the output of that too, how does the conversion of what used to be cryptoasset happen and then I reconnect everything with the real economy."* (P6)	Firm A has been co-leading the development of a public blockchain for the public sector in which the governance occurs through the agreements for construction and operation of the network, with common standards, in public-private partnership. They propose that the network nodes can be divided between different institutions of the government (content extracted from a presentation file explained by P3 in a public innovation event).

Market Practices	Composite Activities	Designable Elements	Underlying Single Activities	Consequences	Illustrative Quotes from In-depth Interviews (*Sayings*)	Excerpts from Unobtrusive Observation and Document Analysis (*Doings*)
Representational Practices	Portraying a development process (PORRU et al., 2017)	Product technology Process technologies	Co-developing with different stakeholders	Encourages innovation through collaboration	*"this blockchain market is still at a time with very low competition and has more collaboration than competition, because it is one of the new markets."* (P1) *"[...] I used to say, in the token, there is no way for the guy to "workaround" and, every time we presented the idea, we keep improving it because people always found a way to "workaround"."* (P1) *"So it is people investing in this technology for future appreciation which are paying the salary of the guy who's working on it now. So we need to make the entry of investments in crypto feasible so that this business attracts more people so that developers can work and develop their projects, right?"* (P13)	Firm A and Firm C have made available source code of their respective projects in the Github (a hosting platform for version control and collaboration). This open source initiative enables the community to analyze their code as well as suggest issues to be improved (content extracted from Github projects of Firm A and Firm).
			Building the solution	Denotes different strategies of product/service development	*"Everything under development is made in company. Everything is developed by the company, from the application, from the software, applications, APIs, everything is developed at home."* (P11) *"I consider Firm B to be a bit a 'root' startup in the sense that we did it without money and this was very good. Maybe at first you do not think so, money is always lacking and you have to be creative."* (P7) *"It is a competitive advantage, but I think we are just the narrator of this story. We are not characters, we are narrators. That is what I said at the beginning. It is a privileged view. But everyone else, everyone can try to be a narrator; it is much more challenging to go there and do a project in crypto than to tell a story and keep talking about that a project is good or bad."* (P16)	The app of Firm B in the Google Play is considerably well evaluated. They account for hundreds of user evaluations and demonstrates a special attention by answering positive and negative feedbacks. We could notice several compliments regarding the usability and user interface which denotes a atention to the software quality process (content extraced from Google Play page of Firm B).
			Detecting usability as a challenge	Enables to provide to the customer a suitable user experience	*"I do not know if you have an crypto exchange account. Maybe you will agree with me that the user experience is awful. The user experience sucks in every way, and one of Firm B's flags is being simple, being elegant, is having a sex appeal in use."* P8) *"[...] there is the question of usability of the accountability at the border, right. Look, man, you have lost your private key, and you're kind of wrapped up, although, in our solution, you have reasonable alternatives."* (P3) *"[...] the usability is a very critical point and it is a critical point that you have a security trade-off, because if you start to improve usability a lot, sometimes you start to lose security, you have to provide solutions that keep you secure, given that this is a differential of the technology, but improves usability."* (P1)	Firm B has dedicated a supporting webpage to widely explain to its customers a series of functionalities from its app, such as transferring cryptocurrencies or depositing bitcoins in the wallet (content extracted from supporting webpage of Firm B).
			Strengthening the security	Enables to provide to the customer a reliable experience	*"This part of cyber risk was a great learning for us. We always focused a lot on this security issue. We closed a partnership with [omitted], they were even expensive, but it was just to protect us from hackers."* (P7) *"[...] a pioneer in crypto security, it has at least two very strong components, the first of which is asset storage. We started from the beginning. We were pioneers in the use of institutional custody, using the best practices, we were kind of discovering the best actors in the world to safely custody and store cryptoassets."* (P14) *"I think that the main evolution was the institutional custody solutions, which today [omitted] does, [omitted], [omitted] itself, who also entered this market. That was this fundamental evolution. We could not offer the service that we offer today if it did not have a safe way to store the cryptoasset for the long term, safe and independent, you know? That we did not want to control private keys."* (P13)	Firm D published a post in their Instagram profile explaining how the transactions are signed in a protected manner and how independent auditors monitor this process (content extracted from Firm D Instagram profile).
			Being agile with the right people	Guarantees a qualified and productive development process	*"[...] possibly I would have more perspectives, but today, quickly, what comes to mind is the agility. The agility today... even today has courses, agile process methodology, this is spreading a lot. The internet is very fast. So, today, what brought us with this differential that can help us in this delivery and the quality, is agility."* (P10) *"You have to have the right people by your side. Spend time recruiting. And the interests have to be very aligned. Everyone has to have the same goals. Whatever it is."* (P7) *"As a founder, a leader in the company, you have to worry all the time, obsessively, with people, with people's success, okay? And it is very easy for you to lose your attention because the business brings others things that seem more urgent or important to you, but are not."* (P14)	A C-level executive of Firm F has the routine of periodically sharing their progress in their Instagram and blog covering both product and business development. This communication enables the stakeholders to notice a constant evolution and delivery of value (content extracted from Instagram profile and blog of Firm F).
			Coping with the innovation process	Reveals the needs encompassed into the coordination of a innovation process	*"If you are not aware, it is a business that pulls the technology, not the technology that pulls the business, so you have to have a solution to a problem, and you have to have the owner of the problem."* (P5) *"Look, innovation in any company is a virus, the company will react and will want to kill, it will react, it will fight that business [...]. The organism will fight, it will fall, it will discredit falls. "This is useless, just a waste of time", so the technology I see as great... The blockchain technology for Firm A in this line of transparency, besides being a pain, it is pain from the whole company."* (P5) *"So, we have been supported by the executives. Of course, this depends a lot on building together with the executives, showing value to them as well as the executives understand the value."* (P4)	Firm A has coordinated an internal innovation contest from which their own employees idealized the solution based on the use of tokens in an illustrative example of intrapreneurship and open innovation (content extracted from Firm A website).

APÊNDICE G – MARKET OFFER LEVEL - FINDINGS MATRIX

Market Practices	Composite Activities	Designable Elements	Underlying Single Activities	Consequences	Illustrative Quotes from In-depth Interviews (*Sayings*)	Excerpts from Unobtrusive Observation and Document Analysis (*Doings*)
Exchange Practices	Creating value (AMIT; ZOTT, 2012)	Activities Value	Providing a simple and secure experience	Helps to overcome the feeling of insecurity	*"[...] opening an account at Firm B is the same as opening an account at a bank, dude. Same thing, same thing. We will ask for the usual data. We will ask for a photo, we will ask for a selfie. We will do facial recognition. We will do a background check, including police, financial, civil."* (P8) *"I am a house regulated by the CVM (Movable Values Commission). I have other funds. My goal was: to make a simple, efficient, and fully compliant vehicle with everything that has status-quo, Federal Revenue, CVM, Central Bank, everything, everything, everything."* (P15) *"We know institutional investors, and this is the background that we see, big investors, they will not come if they do not have a structure for them, so it is 100% safe for them to operate."* (P13)	Firm D has an exclusive section on its website to clarify security, regulation, and governance issues. For example, they highlight that the Movable Values Commission properly regulates crypto-funds and why it is secure is to invest with them (content extracted from Firm D website).
			Concretizing transparency	Enables other adjacent and valuable benefits to the society	*"I thought we were already in the movement of providing a lot of transparency, but transparency assumes that the person believes what you are saying, but they brought this proposal. They do not even have to believe us because who will be speaking will be the one's others, this computer network that is doing the operations and is under permanent public scrutiny. This governance is totally public, and then who will speak for us is this computer network."* (P6) *"So it helps to communicate to the firm, but it is not enough because transparency is just one point, the other is business, which is gone, what is the gain, is transparency with society. What does that reduce in cost, for example, tracking operations, means a lot."* (P5) *"[...] our paper, it promises poverty reduction and some commitments to sustainable objectives and it brings this dynamic of us to be able to generate social impact for minorities and consequently to improve the local economy, to make things happen."* (P17)	Firm F has an exclusive page on its website clarifying how transparency is guaranteed for the investors interested in supporting social impactful projects. They contextualize that the investment trail is applied to all stages of the project under development that was supported, being the efficiency and reliability enabled by the tokens implemented through blockchain (content extracted from Firm F website).
			Working towards return on investment	Clarifies the benefits when compared to traditional financial markets	*"The main value proposition was to give liquidity to the asset. To provide convenience."* (P7) *"So I made an invesment fund to try to find out who will be the champions within each category. Sensitive to the price, I enter and leave, so it is the long-only that applies 80% in the top ten leading cryptos and 20% I can invest in other minor cryptocurrencies, or even ICOs. All within the normative instruction of CVM 11/2018."* (P15) *"The most significant legacy that I would leave if I left the company today is to have brought two thousand families to internationalize their assets and to have protected these families from a devaluation of more than 60 percent within the period from when we started until now. So, just the fact that I provided for these families to protect their assets in more than half of this period, for me, this is already a great legacy."* (P11)	Both Firm D and Firm E have been recognized by external actors as the ones responsible for the most profitable funds in Brazil, including when compared to multi-market funds (content extracted from news media website).
			Democratizing access to new opportunities	Allows to enlarge the target market	*"I think the biggest difference in what we are doing is bringing this democratization, allowing anyone to have access to this market. It is to pulverize access to investment instead of concentrating income in the hands of a few people."* (P11) *"I think we are in this with this chance in order to really popularize high-quality access to crypto and consequently contribute to making crypto mainstream on a large scale, as an asset class and fostering technology."* (P14) *"Look, our mission is to be, as I said, to be a bridge... From the traditional financial market and this new world."* (P13)	Firm C has pioneered the use of a franchise model in the Brazilian crypto-market. In a specific Instagram post, they mention how important has been this strategy of expanding their reach in Brazil (content extracted from Firm C Instagram).

Market Practices	Composite Activities	Designable Elements	Underlying Single Activities	Consequences	Illustrative Quotes from In-depth Interviews (*Sayings*)	Excerpts from Unobtrusive Observation and Document Analysis (*Doings*)
Exchange Practices	Delivering value (TEECE, 2010)	Artefacts Activities Relationships Infrastructure Matching Method	Comprehending the customer segments	Helps to understand the different personas that could be addressed	*"We have as primary beneficiaries in this ecosystem, minorities, black people, indigenous people, rural women, artisans, riverside people, affected by dams, settled and resettled, family farming people, it is a very present focus in our business model."* (P17) *"[...] the client, he has a capital. He has an emergency reserve, and he has a capital that he allocated for venture capital investment. From that amount he invested in venture capital, he takes a part to put in crypto. From that part he puts in crypto, he takes out a part to be able to lease. So the percentage of the investor's aptitude for investing in crypto lease is tiny."* (P11) *"[...] more classic is that you cut retail investors, high-income investors, and institutional investors."* (P14)	Firm D and Firm E have launched investment funds covering different investment strategies and fees which helps to approach different customer segments (content extracted by Firm D and Firm E websites)
			Encapsulating the crypto-world for the widespread entry	Opens up the market to large capital incomes	*"So your money does not go to anything else, and for me, over time, a market rise for these people who are willing to pay for this service. 'I am willing to invest, as long as I have the irrefutable guarantee that my money is going to the right place'."*(P1) *"[...] we went to a level, we created a level of governance, compliance, gigantic security... Thus, higher than what we would do in any other situation because we knew we would charge ourselves for it, for being crypto."* (P13) *"I think the difference was not that of crypto with a stock fund; from an operational point of view, it is complete. The operational efficiency that a crypto fund has is orders of magnitude above one of stocks. So, as an underlying asset it is very more efficient from an operational point of view, strictly speaking, liquidation, this translates to a much more efficient product. It is impressive... for someone who is from the traditional market, it is impressive to see the productivity gain that exists."* (P16)	Firm D has conducted in its YouTube channel a live discussing with a international partner the entry of intitutional investors in the crypto-market. They also exposed this action the Instagram profile as an relevant initiative that mirrors the attention of Firm D to expose for their customers a secure and regulated view of the market (content extracted from YouTube channel and Instagram profile of Firm D).
			Easing the delivery of value	Facilitates the customer experience	*"A cell phone! It is the only thing, right, that you need to be able to acquire. To use it, you have your cell phone, and you can already use it, download the application there, whether you are a physical person or a juridical person, you can do it transactions, charges, transfers, all via the application."* (P12) *"Our value is embedded in the product, in the application itself, that it is very cohesive, very simple to use. In the functionalities of the application. So the fact that you are using bitcoin, real, and very soon, other cryptocurrencies there too. So it is all there in the hub, it is a total one stop shop. It is a beautiful and simple to use application, it is a one stop shop service"* (P8) *"So no matter how much people want your product, if they cannot easily access it, nobody will want it. So our obsessive focus on working with platforms, preparing our products for platforms that have a very high level of demand look at each of these products."* (P14)	In the Instagram profile of one of the companies that form Firm C, we noticed several posts detailing how easy it is to accomplish specific tasks by using the mobile app. For example, in a specific post, they present a video to illustrate step-by-step how to create an account in their app (content extracted from the Instagram profile of the company associated with Firm C).
			Adapting inbound marketing	Conceives how to approach each customer persona	*"So we work with it a lot, we have a very strong inbound marketing. Man, every week there is a new article on our blog, talking about a subject, the articles are always produced thinking about a persona and thinking about a specific keyword to be able to rank on Google; and we write, develop, create a funnel there."* (P8) *"We have a funnel strategy. I never hid it. So, our most aggressive products were a funnel strategy to create communities."* (P11) *"So the way to advertise is this, it is to bring people who already have the public's trust, to show what our firm is, and consequently we will reach people as well."* (P12)	We could notice Firm B's blog and Instagram an up-to-date routine of posts, ranging from promotions to security tips, for instance. This approach reverberates their conception of an intense inbound market to capture the clients according to the persona under the scope (content extracted from Firm B blog and Instagram profile).
			Overcoming marketing challenges	Evidences what are the marketing challenges and how to surpass them	*"[...] But still, it is a niche; it does not have an authority within the market. It is not seen, it is already 10 years in the market, it is not seen as a finance company, it is seen as a fintech yet. So it does not acquire authority, it can not break the bubble, and it still continues in the wild west."* (P8) *"Cryptocurrencies are a prohibited subject on Google. On Google and Facebook."* (P8) *"What surprised us is how centralized the fund distribution market is still. So the fund could have a much larger size if the distribution market were more homogeneous, which is one, I think it should be an issue horizontal for all projects. The difficulty is always the distribution."* (P16)	By analyzing Firm B's blog posts, we observed the employment of acceptable practices for Search Engine Optimization, such as strategic keywords, links for other posts (internal and external), and proper heading tags (content extracted from Firm B blog).

Market Practices	Composite Activities	Designable Elements	Underlying Single Activities	Consequences	Illustrative Quotes from In-depth Interviews (*Sayings*)	Excerpts from Unobtrusive Observation and Document Analysis (*Doings*)
Exchange Practices	Capturing value (CHAMBERS; PATROCÍNIO, 2012)	Transactions Sales item Pricing	Adopting fees to exchange value	Demonstrates an usual pricing strategy adopted by the market	*"Today this part of revenue today involves a lot like the bank. So let us say it, over the fees, right? So handling fees, they are generating profit."* (P12) *"We start from our value proposition of bringing simple products and bringing products with a low-cost structure, we have passive products then, but we collect an administration fee, which is our primary source of income for our funds."* (P14) *"Now, in terms of bitcoin and cryptoassets, I see a lot of opportunities. This is where we focus on our pricing. So, today we gain through a kind of marketplace, a spread, when the customer exchanges bitcoin for reais, I can have one efficiency in price. I can arbitrate that price a little bit and get a fee on it. Our main recipe is this, whether in the purchase or in the sale. Selling is more, but also buying."* (P7)	In Firm F's whitepaper, there is an exclusive section to elucidate the adoption of fees to operationalize their business model and how these charges may be differentiated for financing and loans (content extracted from Firm F whitepaper).
			Experimenting different revenue models	Enlight a desire of addresing different ways to exchange value	*"In the first months of the project, the metric we used was an Return on Image metric, because that happens in several innovation projects."* (P1) *"At Firm B, we have our referral program, an affiliate program. You open your Firm B account, you get a referral code, if you call your friend, you, "ow friend, open your Firm B account with your code", automatically you earn five Brazilian reais, for referring someone and you still earn a small commission on every bitcoin purchase and sale that this guy does during one year. It worked very well! This expanded our customer base."* (P8) *"We have a great responsibility to bring this crowdfunding with us. We are there with 800 people who believed in the project so that we will be together. Through them, we will use them as ambassadors of the project to show my brand around. So it will have a lot focused things on this audience."* (P7)	Firm B has pioneered the adoption of equity-crowdfunding in the Brazilian crypto-market. This strategy enabled the company to acquire a considerable quantity of financial resources allocated for investment in technology, infrastructure, and expansion of new services (extracted from a news media website).
			Acknowledging cost structure	Recognizes specific cost incomes that has to be considered	*"Our main economic issue was more or less the same, making sure that the transaction cost would not make the business unfeasible."* (P3) *"Now, as I was going to say, what are the challenges in this business of being pureblood with cryptoassets? It is precisely the dynamics of economic transformation because, like this, it is as if we had to, we use this jargon a lot, we use it every month, every fortnight, we have to sell a ferrari. Imagine what it is like to sell a ferrari every fortnight, right?"* (P17) *"So, I think this pricing part... I see much difficulty in the digital banking part, which is what I said we offer. I offer bill payment, deposit in payment slip, I get almost nothing from it, practically zero. But I need to have this lot of things to meet the persona of the practical."* (P7)	Firm B has elaborated an entire page on its website to expose their customers to their services' fees and operational limits (extracted from Firm B's website).

APÊNDICE H – SYSTEM LEVEL - FINDINGS MATRIX

Market Practices	Composite Activities	Designable Elements	Underlying Single Activities	Consequences	Illustrative Quotes from In-depth Interviews (*Sayings*)	Excerpts from Unobtrusive Observation and Document Analysis (*Doings*)
Representational Practices	Educating the market (SUWITO et al., 2017)	Capabilities Language Information Symbols Social Norms	Facing a lack of trust	Unravels a distinguished representation of the market to be overcome	*"In the beginning I used to spend shoe soles to be heard, like this, in many places that do not even want to hear us: 'oh no pyramid, I do not even want to hear'."* (P13) *"[...] people have always associated with deep web, with those guys from Silk. And when in reality, they were unmasked exactly because they used bitcoin [...]"* (P5) *"And most of the time there is discrimination, many times we are not considered big companies, serious companies there are companies that turn around and get involved in problems of fraud, pyramids and that ends up tarnishing the name."* (P8)	Firm F has provided on their website a section to answer Frequently Asked Questions. Among the questions that they answer, some are focused on why they use blockchain, the tokens' role in their ecosystem, where the firm is localized, the history behind the business, etc. They also provide a page to clarify who is the founders and the team behind Firm F. This information could help strengthen the company's credibility (content extracted from Firm F's website).
			Working to legitimize and demystify	Difuses social movements to legitimize business and change the market perceptions	*"Education is fundamental. People still do not understand this, this market, they still think it is a pyramid thing, a money launderer, lack of knowledge... The Brazilian market is still far behind in that."* (P13) *"The basic pillar of our entire marketing is to demystify and educate."* (P8) *"So our idea is to demystify. Our idea is this, to really make it easy, to show that cryptocurrency is something simple. Unfortunately, there is much discrimination in relation to crypto. Our idea is to bring this simplicity [...]"* (P12)	Firm D has been posting in their Instagram profile a series of short videos in which they briefly explain questions from their followers about the cryptoassets. In this way, they may capture the attention of the customer and clarify the advantages of investing in crypto (content extracted from Firm D Instagram profile).
			Educating the market to spread the potential	Allows to convince the stakeholders about the benefits	*"I understand that I also have this responsibility to create a market. So I need to look at the person who does not know bitcoin, I need to teach him why it makes sense to expose himself to it."* (P7) *"So we are also trying to educate for the people do not expose themselves more than they would tolerate in this market."* (P13) *"So, we have been tackling a lot from this angle, using the investment agents' evangelization channel, and showing them that literally everyone needs to have a little cryptoasset in their portfolio."* (P14)	Firm C has been exploring a franchise model in Brazil with dozens of partners that have to be appropriately aligned and coordinated towards approaching their clients. In an Instagram post, they highlight that their franchised agents are immersed in training camps to become qualified for personal and financial growth (content extracted from Firm C's Instagram profile).
			Looking different ways for educating the market	Boosts the capability of attracting different stakeholders	*"So, of course, every two months I promote a course focused on the cryptocurrency. So I ended up taking this course so much that I wrote my ebook to save my speech."* (P9) *"We had technical articles for specialized websites. [...] It's always cool. I think you have to "spread the word", do this, not only as a project, but as a government."* (P3) *"We also try to maintain a good relationship with the influencers, so participate in a podcast, in third-party lives, [...] we have a good contact with them, there to open opportunities, I think that, yes, digital media."* (P13)	Firm D has been delivering a series of crypto-based content in its YouTube channel in which they address regulatory and technical issues. This content is also diverse in terms of format, varying from in-depth interviews to short videos introducing concepts (content extracted from Firm D's YouTube channel).

Market Practices	Composite Activities	Designable Elements	Underlying Single Activities	Consequences	Illustrative Quotes from In-depth Interviews (*Sayings*)	Excerpts from Unobtrusive Observation and Document Analysis (*Doings*)
Representational Practices	Co-developing an innovative ecosystem (CHESBROUGH; SCHWARTZ, 2007)	Capabilities Actors Rules and Know-how	Gaining credibility through strategic players	Helps to build an image that represents a reliable business	*"Her (CEO of Firm F) relationship with the [omitted], the access we have to the [omitted] is very important, one of the greatest assets that we have today for us to achieve big agendas."* (P17) *"With regard to the [omitted]. I think that was almost kind of a game changer at the time for us, because it was essential to have a credit card brand for the business and a known one, right?"* (P7) *"In addition, having people who bring a brand like [omitted] makes a huge difference because they are products that work on a large scale and in consumer confidence."* (P14)	The multinational digital payment company that support the credit card of Firm B has announced in their website the established partnership, thus highlighting the pioneer connection of Cryptoeconomics with traditional financial system in Brazil (content extracted from the website of the digital payment partner).
			Nurturing networking and know-how	Increases the knowledge and competence	*"[...] we did two blockchain government events, and the initial idea was to map what blockchain initiatives were in the public sector."* (P6) *"For me, the highest point of our career is having been invited to a round table at [omitted], an event in Singapore [...] and hearing from them that they will be coming with everything through the stablecoins."* (P11) *"So how do we acquire knowledge. One thing is you read on Medium how a project is; another thing you go there and use it. So these projects, for example, DeFi, I have done almost everything. I have already lost money, I have had a problem, but it is part of my job, obviously, we do not do it in the fund, we do it outside the fund, so we are two first-rate users. We have used a lot of things."* (P16)	We observed the co-lead of Firm A in organizing two major events in the last years approaching the use of blockchain for governments. These events accounts with the presence of different players of the ecosystem (content extracted from website event organized by Firm A).
			Embracing multiple external actors to evolve the ecosystem	Facilitates the development of the ecosystem as a whole	*"And build together with them too. So fund managers, custodians, exchanges, ok, so we have this work with them precisely to increase the control bar there, so that we can bring institutional investors. We did a lot of that, I think we learned a lot, built much knowledge about it here, and we helped the industry itself to develop too."* (P13) *"I think the academy also has a vision of a narrator that is cool. So, I see in Brazil everyone that the government, blah blah blah, everyone wants help from someone. I do not think this crypto world has this DNA. But at the same time, because it does not have this DNA, it has difficulties to have limits. I think the academy can try to understand what are the limits that make sense."* (P16) *"[...] today I think it is part of our work too, we need to foster the ecosystem, so we, for example, minister several internal courses for bank employees, and then we started taking courses for the public external, [...] because we know that we need these interactions with these other bodies, with other regulatory bodies, with developers of solutions that are in other government agencies to promote this discussion [...]"* (P6)	Firm A has been nurturing a strong relationship with a blockchain development program led by an international bank. From this partnership, we could observe a public software repository in the Github which is maintained by both parties in order to develop and execute a different type of blockchain projects. In this repository, they clarify several technical issues that they have been working on, thus incentivizing the community's collaboration (content extracted from Github projects of Firm A).
			Coopeting to enlarge the market	Opens up new opportunities for growing together	*"So there are players, each with a slightly different angle in terms of the value proposition, but everyone is playing on the same market. I really believe that everyone is there, people may not understand, or not understand over not thinking a little, but everyone is helping each other."* (P14) *"I think three cases that offer similar products. And the relationship we have is quite good. I think that is a friendly competition. We understand that if you have a single crypto fund, you have nothing, because there is no market. When you have competitors, you have a market."* (P16) *"So, I do not know if other players see it as the way I see it, if they really want to kill. If they already want to start fighting, fight among the companies themselves. Start killing the competition to keep a small share, or if they want to expand the market as a whole. [...] I think it is not a time to fight for share, it is a time to expand share as a whole."* (P8)	Firm B has made an Instagram post in which they communicated the manual of best practices and self-regulation developed by the ABCripto (Brazilian Association of Cryptoeconomics). The ABCripto is composed of the major Brazilian crypto exchanges and is devoted to bringing together players from the cryptoassets and blockchain world for dialogue with the public authorities, as well as to carry out actions in favor of technological development and innovation in the sector (content extracted from Firm B Instagram profile and ABCripto website).

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Normalizing Practices	Welcoming and shaping well-defined rules to advance the business (CUMMING et al., 2019)	Market Standards Standards Regulations Information	Perceiving a progress towards an agenda pro-regulation	Helps to develop an overall trust on the market	*"[...] in fact I see regulation as a good thing in general, if it is done with the purpose of helping or dictating the minimum rules. That is the least you have to do to be free there. That I see as good because it differentiates the chaff from the wheat. What I see with bad eyes, and sometimes the line is fine between one thing and another, is to enforce very high barriers that inhibit innovation. I do not know... minimum capital requirement."* (P7) *"In this point of view, when you look at crypto as investment, we are totally pro-regulation. We really have to have it; otherwise, we are not going to move. If it is not regulated, prohibited, the market will not develop."* (P13) *"In relation to the government, that has been very calm. Today we have an API integrated with the Federal Revenue and we send to them in the following month all the company's movement, where it gathers the tax at source on the lease contracts. We also demand the issuance of a Service Invoice from our autonomous crypto agents."* (P11)	Firm A has posted in its Instagram profile a specific post clarifying how the company is legal in the light of Brazilian law. They clarify the Normative Instruction in which validates their business model (content extracted from Firm B's Instagram).
			Influencing rules and norms	Contributes to shape rules towards the needs of the business	*"And on the side of the regulatory sector, the legal side, ABCripto created self-regulation to prevent fraud. So, the good practices of companies, what companies should ask from customers, regarding information, so to avoid frauds." (P8)* *"Since the beginning, we used our approaches to talk to the CVM staff, [...] people that are directly or indirectly responsible for investment funds. One CVM member came on our YouTube channel to do a YouTube live with us, we really try to try to nurture, nurture these relationships."* (P14) *"I am super proud to say that I cooperated with her, before she was born, because she was born in September 17 and that's when we were able to launch our retail fund." (P15)*	Firm D has conducted a video in which they discussed with a representant of the Movable Values Commission the role of sandboxes for encouraging innovative solutions in the sector and what are the perspectives for the fund market based on cryptoassets (content extracted from YouTube channel fo Firm D).
			Figuring out uncertainties and barriers	Identifies particular challenges to be faced	*"For the case of standards, I think that the overall maturity is still very low, the standards that are coming out are standards of nomenclature or standards of platform comparisons or how the platforms work. They are very explanatory or comparative and less enabling."* (P2) *"How do public entities account, how do public entities move, transfer assets such as a token, a cryptoasset like this. You do not have the legislation that supports this, and then you reduce the incentives for this to happen. It remains a very abstract thing, very ethereal, and the people are always very conservative."* (P6) *"So, the government can be very good, but it can arrive and, man, you are prohibited from operating here. Which creates insecurity. There have already been congressman, senators, talking about banning business."* (P7)	Firm E has the routine of publicizing monthly market reports in their website. By analyzing these reports we could notice the feeling of the portfolio manager as the market evolves, including its perception of changes and opportunities. They very often addresses regulamentory issues and movements of worldwide players (content extracted from Firm E website).