Silicon Dragons' Business Model Innovation

An explorative case study

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Abstract

The purpose of this thesis is to explore how Business Model Innovation is conducted in China. In particular, to unveil how the Innovation Ecosystem influences the process of BMI. The empirical context of the study is represented by Baidu, Alibaba, Tencent, Xiaomi, known as China's Silicon Dragons. Furthermore, the nature of this paper is exploratory and follows a pragmatism philosophy. The study was conducted using an abductive research approach. Moreover, a qualitative strategy was used to gather empirical data, which was done through a multiple case study of BATX.

The findings reveal that BMI was driven by external factors such as: 'flaws in existing market', 'growing market', 'market disruption', 'changes in consumer preferences'. Furthermore, the companies pursued mainly adaptive and evolutionary BMI through *micro-innovations*. Among the capabilities fundamental to conduct the BMI process were strong leadership, entrepreneurship and being quick to seize and shape opportunities.

The Innovation Ecosystem influenced the BMI process in several ways such as: '*Access to a new market*'; '*Support to Technological Innovation*'; '*Co-Creation*'; '*Access to knowledge and resources*' leading to '*Accelerate BMI process'*. Furthermore, it was found that that the IE is a *driver, enabler* and *success factors* of Business Model Innovation.

The study is limited due to the qualitative research strategy and should therefore be confirmed by a quantitative study. A further limitation is represented by the small number of interviewees gathered. Future research is suggested such as: conduct a similar study on other emerging companies in China, in particular unicorns. Alternatively, explorative the relationship between BMI and IE in a new industry.

Acknowledgements

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Definitions and abbreviations

AI: Artificial Intelligence
BATX: Baidu, Alibaba, Tencent, Xiaomi
BE: Business ecosystem
BM: business Model
BMI: Business model innovation
GAFA: Google, Amazon, Facebook, Apple

IE: Innovation ecosystem
IM: Instant Messaging
MAU: Monthly Active Users
ML: Machine Learning
O2O: online-to-offline
VAS: Value-added services
VR: Virtual Reality
IoT: Internet of Things

1. Introduction

In this section, the research background is presented, together with the problem statement, the purpose and the research questions. Furthermore, the structure of the thesis will be presented, by outlining in brief the content of each section. In the final part it touches upon the contributions of this research and the relevance of the topic for the authors' study programs.

1.1 Research Background

"We don't want to be number one in China. We want to be number one in the world".

These words have been pronounced by Alibaba's CEO Jack Ma to the *South China Morning Post Newspaper* few months after the foundation of Alibaba in 1999 (Tse, 2016, p. 37). His words reflect the importance and concern around the emergence of Baidu, Alibaba, Tencent, Xiaomi in the Chinese Digital Era. These young and entrepreneurial companies have been named "Silicon Dragons", "Chinese Tech Giants" and "China Unicorns" for their disruptive business models and approach to innovation (Birtwhistle, 2016; Greeven and Wei, 2017a; Rotax, 2018).

Several articles argue about the shifting of the centre of gravity from USA to China as one of the most innovative country. In particular, a shift from "in China for China" to "China for the world" has happened, since the solutions and value propositions brought by Chinese entrepreneurial companies have the potential to disrupt international markets (Birtwhistle, 2016). The emergence of BATX has been favored, among other factors, by the implementation of market-oriented reforms in 1979-1980 by Deng Xiaoping, with the aim to guide the transformation of China into an open economy. These measures drove economic development which led to the implementation of an innovation-led growth strategy (McKern, 2016). Furthermore, BATX benefited from the *Great Firewall* implemented from 2000 by the Chinese Government, which blocked Google, Facebook, Amazon among other companies in China. This "cyber-sovereignty" allowed for a distinct advantage of the "Silicon Dragons" (Baron, 2019, Kapron and Shaughnessy, 2015).

In the first phase of openness of Chinese economy, it was relatively easy for Chinese companies to copy products and business models that were successful in the West and adapt them to the Chinese consumers. This phenomenon is known as *Shanzhai* (McKern, 2016; Tse and Gervasi, 2017). Because of this ease of exposure to Western products and the fast pace with whom they were copied and replicated, China has earned the reputation of a "copycat" nation (Tse and

Gervasi, 2017). However, in the last years China has been experiencing what has been referred to as *Reverse Shanzhai*, that is the continuous business model innovation by Chinese companies. These are increasingly seen as inspirators by Western companies, especially in the tech industry (Tse and Gervasi, 2017). Because of the image of China as a copycat, BATX has been usually considered as the twins of the American Google, Amazon, Facebook, Apple (hereafter referred to as GAFA).

To achieve the perception of China as an innovative country by 2020, the Chinese Government has favored an innovation ecosystem through reforms like the *Long-Term Plan for the Development of Science and Technology* in 2006 (Abrami et al., 2014; Hong Liu, 2017, p. 219). Since then, China has tried to reach an innovation excellence, and the peculiar approach nurtured by this nation towards innovation has been pointed out and analysed in the book "Chinnovation". Here, *Chinnovation* is described as a combination of eight Rs: Revenue; Rapidity; Requirements; Reproduction; Rivals; Restrictions; Remixing and Raw Materials (Yinglan Tan, 2011, p.13).

By exploiting the power of digital solutions and disruption, BATX have created a connected life through a "boundaryless business approach" (Greeven and Wei, 2017a). In order to penetrate the life of Chinese consumers in all its aspect, they successfully exploit the trend of *Onlinisation* (Hong Liu, 2017, p.254) to create business ecosystems, instead of only corporations (Greeven and Wei, 2017b). One leverage to achieve their success was to ideate new business model innovation processes. It is for this reason that, sometimes, people referred to this as "Chinese-inspired BMI" (Birtwhistle, 2016). Other scholars have labelled it "Made in China BMI", which implies the ability and rapidity in seize opportunities in the BMI field and transform valuable propositions in profitable businesses (Hylden, 2016).

Business Model Innovation (BMI) occurs when a firm commercializes its assets with a novel approach, by identifying a new customer value proposition (Wirtz et al., 2016). Since the value creation and the value delivery of a company's offer depends heavily on its business model configuration, the ability to innovate it determines a company's success (Wirtz and Daiser, 2017; Lindgardt et al., 2009). In fact, being innovative is something that draws a company's future:

"*Innovation distinguishes between a leader and a follower*" Steve Jobs quote *(Griggs, 2016).*

In fact, the inability to seize and catch opportunities before the competitors can undermine the company's growth and competitive advantage. Two examples better clarify the concept: *Blockbuster*, the famous provider of games and movie rental services, was overcome and demised by *Netflix* due to its reluctance to change sales strategy and go digital. Another example of

company that failed because of its reluctance to innovate its way of doing business is *Toys R Us*. By refusing the *Onlinisation* brought by the Internet, they went bankrupt in September 2017, leaving a free space for Amazon and eBay to target customers with their online sales on cheaper toys (Cole, 2019).

Despite some challenging aspects, the power of BMI is significant. In fact, it can be a tool to overcome competition, as well as to successfully overcome downturn periods for the company (Lindgardt et al., 2009). Furthermore, as product and technology innovation are easy to imitate, BMI represents a chance to beat the competition with a tool more difficult to imitate, since its features are context-specific (Foss and Saebi, 2017b; Sahay and Sahay, 2017).

The complexity in ideating and implementing BMI leads companies to seek for partners that support them throughout the process. Innovative business models, in fact, do not usually exist in isolation; rather, they are part of an ecosystem of participants that work together with shared goals and objectives (Sahay and Sahay, 2017). These partners form the *Innovation Ecosystem*, where the final aim is to jointly achieve a superior innovation performance and create a value that the company would not been able to create alone (Xu, 2017; Adner and Kapoor, 2010; Iansiti and Levien, 2004).

1.2 Problem Statement

In a dynamic and open environment, the competitive advantage built on product or technological innovation is weak, due to its exposure to replication by competitors. These two types of innovation have always been regarded as being at the foundation of a company's success. However, recently they have been complemented by innovations in the business model (De la Puerta Gonzàlez-Quevedo, 2018).

BMI is a difficult process and has gained the attention of scholars and managers and has been considered at the base of any innovation strategy (Foss and Saebi, 2017b). Despite the reasonable size of articles and research published about the topic, BMI needs for additional empirical results to favour a better understanding of the phenomenon (Foss and Saebi, 2017). In particular, case-study based investigations were suggested (Wirtz et al., 2016).

A noteworthy feature of the BMI is its context-dependency, according to whom BMI process can develop differently depending on the environment in which it is pursued (Foss and Saebi, 2017b). However, this feature has not been analysed in depth by the literature; in fact, as mentioned by Schneider and Spieth (2013), BMI requires to be further explored in other markets, industries or

specific structural contexts. In relation to this, a lack of research has been identified in the context of BMI within an innovation ecosystem (IE).
BMI is strategically important to ensure a company's success or failure, and to determine its nature as a leader or a follower. For this reason, more research about BMI is needed. Furthermore, the exploration of BMI in the context of Innovation Ecosystem will offer a new perspective to managers on how they can leverage networks of knowledge to achieve a successful BMI.

1.3 Purpose and Research Questions

The purpose of this thesis is to explore how Business Model Innovation is conducted in China. In particular, to unveil how the Innovation Ecosystem influences the process of BMI. The empirical context of the study is represented by Baidu, Alibaba, Tencent, Xiaomi, known as China's Silicon Dragons. In order to fulfil the purpose, the following research questions will be answered:

RQ1: *What are the common characteristics and differences between the BMI practice of Baidu, Alibaba, Tencent and Xiaomi?*

RQ2: *What are the most important factors of the Innovation Ecosystem affecting the BMI process?*

The aim of the study is to contribute with new insights and understanding to the existing literature about business model innovation, by uncovering its nature in the context of an IE. The goal is to narrow down gaps already existing in the literature and further clarifying the BMI process and its characteristics, given its relevance both for the business professionals and the academic body.

1.4 Structure of the thesis

This thesis contains six sections: Introduction; Theoretical background; Methodology; Case studies; Cross-case analysis and discussion; Conclusion.
The first section offers an overview of the research background. Consequently, it explains the problem statement, the purpose and the research questions that will be the subject of the thesis. Furthermore, the contributions of the thesis are outlined together with the thesis' relevance for the authors' study programs.
The second section provides a theoretical background about the topics of Innovation, Business Model, Business Model Innovation and Innovation Ecosystem.

The third section presents the methodology and methods used in the thesis. Furthermore, it discusses the trustworthiness of the study.
The fourth section is dedicated to the study of the case companies Baidu, Alibaba, Tencent and Xiaomi. For each company, the following aspects will be analyzed: its business model innovation features, its innovation ecosystem composition and their interactions.
In the fifth section the empirical findings from each case company are analyzed collectively through a cross-case analysis. Furthermore, the findings are discussed based on the literature.
Finally, the sixth section answers the research questions, by giving a conclusion on the findings of the study. Furthermore, it presents the limitations, theoretical and managerial implications and the suggested future research.

1.5 Contributions of the thesis and relevance for the authors' study programs

This study aims to generate comprehensive results on the practice of applying BMI within the context of an Innovation Ecosystem. This thesis, therefore, contributes knowledge both to the academic body and to managers and businesses. On the first side, it gives scholars new knowledge about Business Model Innovation field. A further indirect contribution is given to the IE theory. In fact, since BM and BMI deal with value creation and value capture, our study shows how a firm can create a value constellation for the customers within an innovation ecosystem.
The second contribution is directed to the business field. In fact, as already mentioned in the *Research Background*, whenever product or technological innovation becomes excessively expensive or insufficient to beat the competition, companies must find new ways to beat competitors and survive. By applying and exploring BMI in an IE, this gives managers an input to consider how an IE can successfully be exploited to implement a BMI which has unique characteristics. Moreover, by analytically exploring BMI in BATX, or "Silicon Dragons", it offers a stimulating picture to managers related to which aspects of these Chinese entrepreneurial conglomerates have been determinant in shaping their future.

The topic of this Master Thesis is relevant for both authors' study programs: *Finance and Strategic Management* and *International Business*. As a matter of fact, this study explores the concept of BMI, which is already a milestone for companies as well as a considerable strategic imperative. BMI is an important tool for major companies to dominate a market or an industry, and rather than being founded on technological progress, it is stimulated by an entrepreneurial idea (Achtenhagen

et al., 2013). It is clear, therefore, the close link between the BMI, strategic tool, and the strategic features of the study programs.

Furthermore, the context in which BMI is explored is closely related to "International Business", where competition strategies at a global level determine the success or failure of entire businesses. Chinese BATX, in fact, are rising concerns around their ability to have a huge international impact beyond their domestic market (Birtwhistle, 2016). In fact, the rising of a "China for the World" strategy means that the Chinese landscape is increasingly becoming a strategic priority for international companies. Moreover, targeting China as an international expansion calls for a strategic partnership with one of the leading internet companies (Birtwhistle, 2016). What renders the topic also "International" is the boundaryless approach of BATX in pursuing their innovation objectives (Greeven and Wei, 2017b).

To conclude, the topic of BMI is primarily a strategic topic, and the context in which it is diagnosed can be circumscribed within the broad field of international business, since Chinese companies are becoming capable of competing with and beating international rivals.

2. Theoretical framework

This section presents the theoretical foundations of the thesis. It starts by offering an overview of the general topic of Innovation. After having briefly outlined the definitions and main types of innovations, it focuses on the concept of Business Model. This topic will lead the reader towards Business Model Innovations, the core of this study, which will be treated in detail. In particular, an overview of the concept, definitions and insights into the main research will be offered. The final section gives an overview of the Innovation Ecosystem concept, its origins and characteristics.

2.1 Innovation

The phenomenon of *innovation* is not new; in fact, research about the topic started to emerge as an independent field of study in the 1960s (Fagerberg J., 2006).
Regardless of the lack of universally accepted definition of innovation, it is acknowledged by most scholars that in a rapidly changing environment, the ability to effectively manage innovation is essential (Böhmer A. et al., 2015), particularly because innovation is a fundamental strategic issue (Baregheh A. et al., 2009).
As a result of several studies, a relationship between innovation and competitive advantage has been found. The expression "innovate or die", coined and generally accepted within the business environment (Kavadas et al., 2007), clearly shows the need to innovate to survive and beat the competition. By constantly innovating, a company can gain the benefits of differentiation and achieve a superior competitive advantage with respect to other players (Tan et al., 2006; Böhmer A. et al., 2015; Hansen, 2014; Gunday et al, 2011). In the same vein, a study conducted by Fagerberg (1988) showed that differences in innovation activities are the main factors affecting the dissimilarities in economic performance between countries. As a result, innovation develops not only on a company-level, but also on a country-level, as a crucial determinant of the long-term economic growth (Gopalakrishnan S. et al., 1997; Fagerberg J., 2006).

2.1.1 Defining "Innovation"

As already mentioned, the lack of a generally accepted definition of the concept gives way to a variety of definitions (Baregheh A. et al., 2009). As claimed by Lin (2006), the word *innovation*

comes from the Latin *Innovare* which means "creating something new". As reported by Suroso and Azis (2015), a recurring definition belongs to Schumpeter (1983), who underlined the importance of *novelty*, defining *innovation* as the application of something new that could come in many forms – a new product; a new process; a new market; a new form of business or organization. According to Damanpour (1996), *innovation* is both a response to the external changing environment and an action to influence it, while Suroso (2015) highlights that innovation is a process with different sources that often unfolds from complex interactions between individuals.

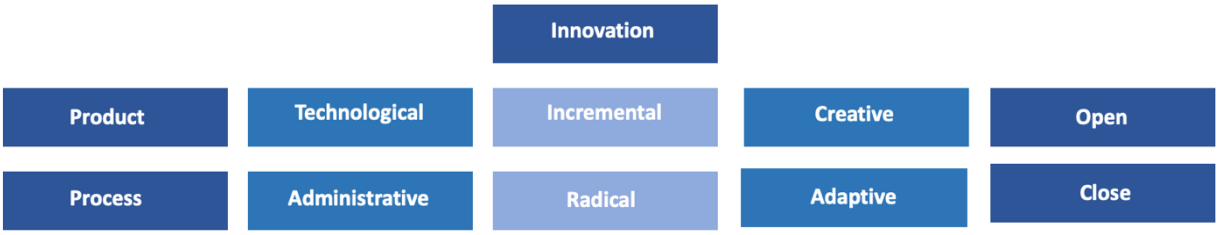
Innovation is not deeply rooted into organizations; conversely, in order to be able to successfully innovate, companies need to nurture *innovativeness*. This deals with the understanding of the need to innovate and a consequent positive attitude towards the change. Furthermore, innovativeness is an important and strategic resource for companies (Zawawi et al., 2016).

It should be noticed that frequently the concept of innovation is erroneously interchanged with that of *invention*. The latter relates to the immediate manifestation of an idea for a new product or process, while the former relates to the commercial transaction involving the outcome of that idea (Fagerberg, 2006). Despite the relationship between the two concepts, invention does not always lead to a marketable innovation, and usually there is a time lag between the two. In fact, in order to turn inventions into innovations, a combination of knowledge, skills and resources is needed (Zawawi et al., 2016).

2.1.2 Classifying Innovations

The classification of innovations is heterogeneous, but some common distinctions are accepted among the scholars. As reported in the article by Zawawi et al. (2016), innovations can be classified according to three dimensions: radical or incremental; product of process; technological or administrative. Moreover, a distinction between creative and adoptive innovation has been made by Thompson (2004), while Chesbrough (2017) investigated the distinction between "open" and "closed" innovation. The picture below is shown in order to simplify the understanding of the various types of classifications.

Figure 1. *Types of innovations*



Any type of innovation should be consistent with the company's business model, which determines the way a firm create and deliver value to the customers and allows the company to gain a competitive advantage. As mentioned by Sahay and Sahay (2017), in fact, the business model and its components constitute the foundation for the success of other types of innovations inside the company. It is therefore necessary to shift the attention towards the concept of business model and its elements.

2.2 Business Model

2.2.1 Business Model Concepts and Definitions

In recent years, the business model concept has gained substantial attention by both academics and practitioners. Some of the driving factors include emerging knowledge economy, the growth of the Internet and eCommerce as well as the changes of the financial services industry. The way companies collect revenue today is significantly different and often more complex with respect to the industrial era (Teece, 2010). Despite increasing academic interest and attention, the literature has not yet converged to a common opinion about which components exactly make up a business model (Zott et al., 2011). Furthermore, business model is often discussed superficially without further understanding of its foundation, its role and its potentials. The topic is sometimes even studied without explicitly defining the concept (Osterwalder et al., 2005; Zott et al., 2011).

In an attempt to define BM, Osterwalder et al. (2005) described the business model as the "blueprint of how a company does business". The authors further conceived BM as a theoretical tool containing a set of concepts and their relationships with the aim to express the business logic of a specific organisation. Amit and Zott (2014) offer a similar definition, defining a company's BM as a system of interconnected and interdependent activities that determine the way the

company “does business” with its customers, partners and vendors. Other definitions of business model outline its value-related perspective. For example, according to Amit and Zott (2001), the business model is a set of mechanisms designed to create value through the exploitation of business opportunities. In the same vein, Chesbrough (2006) claims that the two functions of a business model are value creation and value capture. Indeed, BM has the objective to deliver new products or services that create a net value for the customer. Furthermore, it enables the firm to capture some value from the activities performed.

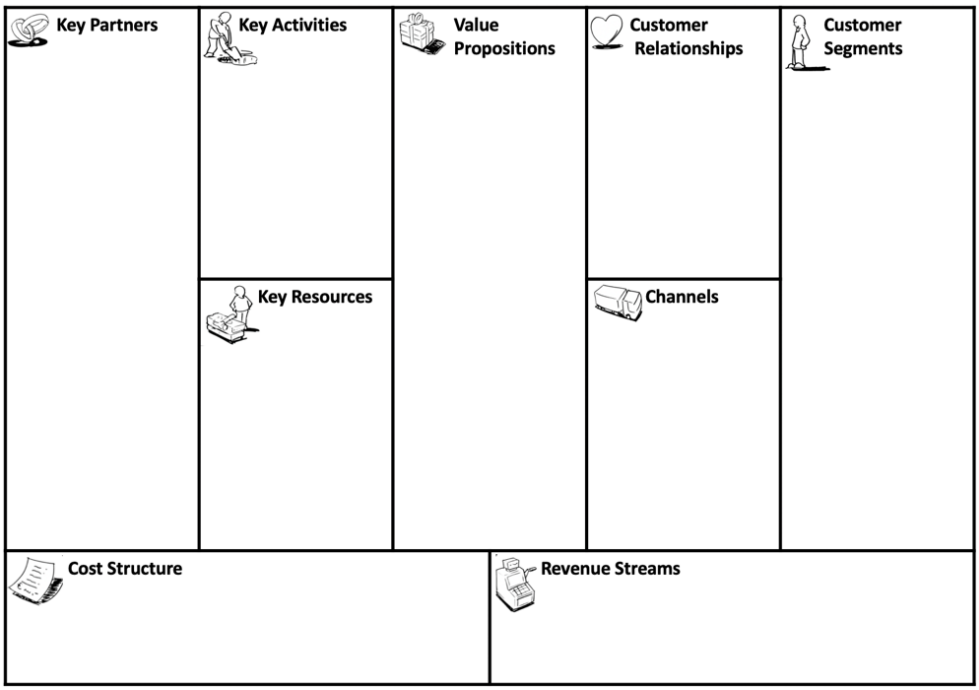
The concept of business model can be viewed and interpreted in two ways according to Demil and Lecocq (2010). The *static view* of the BM gives a picture of what a company’s main BM elements are and how they are organized. It therefore enables the classification and description of a BM as it is in a particular point in time. However, the static approach fails to explain how and why a company’s BM can go through a process of evolution. This gap is filled by the *transformational* view, which sees the BM as a tool and a mean to address changes and focus on innovation, either in the company or in the BM itself. This approach is particularly useful for managers, as it helps to reflect on how they can successfully change their business model and embrace innovation.

2.2.2 Business Model Elements and Frameworks

The various definitions of BM have led to different explanations about what a business model is constitute by. In fact, as mentioned by Fielt (2014), different scholars have called the BM components with different terms: building blocks, components, functions. By uncovering the various elements of a BM, scholars have elaborated different frameworks, currently used to visualize how a company carries out its business.

The most discussed and used framework in the literature is the *Business Model Canvas*. It was first introduced by Osterwalder and Pigneur (2010) and contains the concept of the nine building blocks which form the business model, as shown in Figure 2. The combination of the nine blocks covers four fundamental corporate areas: customer (segments, relationships and channels); offer (value proposition); infrastructure (activities, resources and partners) and financials aspects (revenues and costs). This model allows for an easy perspective on a company’s business model and offers an immediate tool to visualize how the company is “doing business” (Fielt, 2014).

Figure 2. *Business Model Canvas*



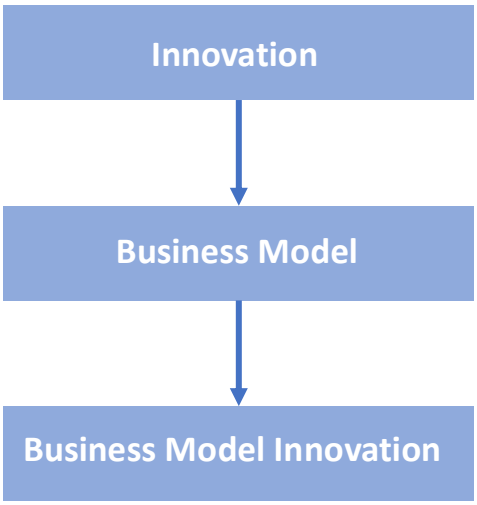
Source: Osterwalder and Pigneur (2010)

A framework that shares some similarities with the BM Canvas is the *Four-Box Model* introduced by Johnson et al. (2008) shown in the Appendix 1. According to the authors, the BM is constituted by four interlocking elements: customer value proposition; profit formula (made of revenue model, cost structure, margin model and resource velocity); key resources (any asset like people, technology, facilities, channels); key processes (managerial and operational). While the first two elements define the value created for the customers and the company, the latter refers to how value is created concretely. The differences with respect to the BM Canvas are related to how the elements are divided and to the fact that this model stresses more the operational and financial aspects.

After having done a review of all the contributions to the BM components, Morris et al. (2005) proposed a framework based on entrepreneurship theory (Fielt, 2014). They identified six main components of a BM namely: offering (the value for customers); market factors (related to the customer segment); internal capability factors; competitive strategies; economic factors (related to how the company makes money); personal/investor factors (related to what the company aims to achieve).

Given that a company's business model represents the company's business and the value for its customers, it can assure competitive advantage, if properly differentiated by the competitors. Therefore, innovating the business model, which is harder to copy compared to other innovations, can assure a sustainable competitive advantage. Companies must continuously manage, evaluate and innovate the BMs over time in order to remain competitive and sustain future growth (Chesbrough 2010; Teece, 2010; Zott et al., 2011; Amit and Zott, 2012).

Figure 3. *The origin of the Business Model Innovation*



2.3 Business Model Innovation

2.3.1 Business Model Innovation definitions

An innovative business model can be a source of superior performance and competitive advantage, it can both create a new market or allow a company to generate and exploit new opportunities in existing markets (Amit and Zott, 2012). In order for executives to pursue BMI, the concept first needs to be understood. The research field of business model innovation (BMI) is thus of high relevance. The first identified explanation of the BMI concept was elaborated by Malhotra (2000), which involves a fundamental rethinking of the organization beyond the simple change in the business processes. In fact, a mere change or improvement in the BM constitutes a "business model development" which, according to Schneider and Spieth (2013), is different from a BMI. Innovating a BM, indeed, refers to changing the source of value creation, which goes beyond a simple development of the business model. During adjustments of the current BM, the focus is on the current state and potential development of its BM. Conversely, when innovating

the BM, a further requirement is to seize opportunities in the external environment. Furthermore, the authors argued that the two types of business model adjustments require different theoretical foundations. While the resource-based perspective might be an appropriate theoretical foundation for BM development, strategic entrepreneurship might be more appropriate for BMI (Schneider and Spieth, 2013).

Table 1. *Selected definitions of Business Model Innovation*

Authors	Definitions of Business Model Innovation
Mitchell and Coles (2003)	*"The execution of "business model replacements that provide product and service offerings to customers and end users that were not previously available" (p. 17).*
Lindgart et al. (2009)	*"Innovation becomes BMI when two or more elements of a business model are reinvented to deliver value in a new way"* (p.2).
Osterwalder and Pigneur (2010)	"*Business model innovation is about creating value, for companies, customers, and society. It is about replacing outdated models*" (p.5).
Frankenberger et al. (2013)	*"A business model innovation can be defined as a novel way of how to create and capture value, which is achieved through a change of one or multiple components in the business mode" (p.3).*
Taran et al, (2016)	*"Any change in any of the building blocks of a BM, or the relationships between them, as a form of BM innovation" (p.2).*
Geissdoerfer et al. (2016)	*"Business Model Innovation describes either a process of transformation from one business model to another within incumbent companies or after mergers and acquisitions, or the creation of entirely new business models in start-ups" (p.1220).*
Foss and Seabi (2017a)	*"Designed, novel, nontrivial changes to the key elements of a firm's business model and/or the architecture linking these elements" (p.1).*

No unified explanation has been identified about when a change can be called BMI. A stream of research has focused on the dimensionalization of BMI. For example, Foss and Seabi (2017b) dimensionalized in terms of novelty (New to the firm vs. New to industry) and scope (Modular vs.

Architectural). According to this differentiation, the authors distinguish between four types of BMI.

Figure 4. *Business Model Innovation Dimensions*

		Scope	
Novelty		**Modular**	**Architectural**
	New to the firm	Evolutionary BMI	Adaptive BMI
	New to the industry	Focused BMI	Complex BMI

Source: Foss and Saebi (2017b).

The Evolutionary refers to changes which naturally occur over time in one of the BMs blocks; the Adaptive BMI reflects changes in the BM as a whole which are new to the company but not necessarily new to the industry; the Focused BMI implies innovation only in few blocks of the BM, for instance targeting a new market segment that has been ignored by its competition; finally, the Complex BMI involves the ideation of an entire novel BM which is new to the industry. One example given is the transformation of traditional brick-and-mortar firms that shift toward online platforms.

The authors further affirmed that while in the evolutionary and adaptive BMIs the company reacts to changes in the external environment, in the complex and focused BMIs the company actively engages in BMI process in order to disrupt market conditions.

In terms of scope, there is a certain disagreement concerning "how many of the components have to change". Some scholars argued that a single change in one of the BMs blocks or the relationship between them can be considered as a BMI (Taran et al., 2016; Amit and Zott 2012), while Lindgart et al., (2009) claimed that in order for the BMI to occur, "two or more" components of the BM have to change. Additionally, BMIs can be classified in terms of intensity. Wirtz and Daiser (2017) differentiate between moderate and radical BMIs. While moderate BMIs imply only small changes occurring within a business model, radical BMIs deal with deep modifications of the business model and its components, as the entire value creation and value delivery change.

2.3.2 The importance of Business Model Innovation research

Business Model Innovation is of interest to managers, entrepreneurs and academic researchers for multiple reasons (Amit and Zott, 2012; Wirtz and Daiser, 2017). The increased interest could be

partly explained by the increasing number of opportunities for business model configurations enabled by technological innovations, new customers preferences and deregulations (Wirtz and Daiser, 2017). Amit and Zott (2012) suggested in particular three reasons why attention to BMI should be paid. First, it represents an often-underestimated source of future value. Second, competitors may find more difficult to replicate an entire novel activity system rather than a single new product or process. Therefore, innovation at the level of the business model may result into a more sustainable advantage. Third, due to BMI being a competitive tool, managers need to be aware of the competitors' efforts within the field. A study conducted by IBM in 2006 regarding innovation showed that competitive pressures have pushed BMI significantly high on the CEO's priority list (Pohle and Chapman, 2006). Similarly, as reported by Hargadon (2015), a survey by the *Economist Intelligence Unit* found that business model innovation has the potential to overcome products/service innovation in terms of importance. Additionally, BMI can be a strategy to gain competitive advantage only if the new model is sufficiently differentiated and hard for incumbents and new entrants to copy (Teece, 2010).

A review of the literature shows that more research is needed especially regarding the implementation of the BMI process (Geissdoerfer et al., 2018; Frankenberger et al., 2013; Schneider and Spieth, 2013); the antecedent condition and contingencies (Foss and Saebi, 2017a); examination of drivers and barriers (Wirtz et al., 2016; Schneider and Spieth, 2013); enablers and effects of business model innovation (Schneider and Spieth, 2013).

2.3.3 Business Model Innovation as an organizational change process

Several scholars related BMI to an organizational change process. The process is not a one-time transformation, rather it is often repetitive (Bucherer et al., 2012; Geissdoerfer et al. 2017). For instance, BMI can occur by adding new activities, for instance through forward and backward integration; by linking activities in novel ways; by changing one or more parties that perform any of the activities (Amit and Zott, 2012).

Some researchers described the BMI process in terms of different phases (Frankenberger et al., 2013; Wirtz and Daiser, 2018; Geissdoerfer et al., 2017). For instance, Frankenberger et al. (2013) constructed the "Interactive 4Is-framework", which divides the BMI process in four phases: initiation, ideation, integration and implementation. The *initiation* phase refers to activities implemented with the purpose to analyse the ecosystem of the company. In the second phase, *ideation*, the activities are more focus on the BMI, and potential new BMs are discussed. In the

integration phase the ideas generated are translated into concrete and viable BMs. In the last phase, *implementation*, the ideas are taken into action which often requires huge investments.

Similarly, Geissdoerfer et al. (2017) described the process in terms of phases. The authors developed the *Cambridge Business Model Innovation Process* illustrating eight steps: 1) Ideation, 2) Concept design, 3) Virtual prototyping, 4) Experimenting, 5) Detail design, 6) Piloting, 7) Launch, 8) Adjustment and diversification (see Appendix 2). In contrast to the *Interactive 4Is-framework*, this model focuses more on the ability to move between the phases as well as how to perform sustainable BMI. Finally, Wirtz and Daiser (2018) elaborated a generic BMI process with seven key activities, namely: analysis (of the current situation and business model); ideation (development of BMI missions and scenarios); feasibility (in terms of business environment and interdependencies or alignments); prototyping (analysis of creation of different alternatives); decision-making (selection of the final BMI design); implementation and sustainability (monitoring and adaptation of the BMI).

BMI is a complex process, and yet very difficult to achieve (Wirtz et al., 2016; Chesbrough, 2010). A stream of research focused on identifying capabilities needed in order to succeed along the process, such as being entrepreneurial (Achtenhagen et al. 2013; Schneider and Speith 2013); identifying new opportunities within the environment (Leih et al., 2015; Schneider and Speith, 2013); have a strong leadership (Leih et al., 2015; Achtenhagen et al., 2013). Additionally, Achtenhagen et al. (2013) recognized utilizing resources in a balanced way; having a clear leadership; having a strong organisational culture and employee commitment. Similarly, Schneider and Speith (2013) stated that strategic entrepreneurship, as well as the ability to explore and exploit opportunities within the environment is needed to innovate the business model. Leih et a.l (2015) divided dynamic capabilities into three groups of activities: sensing opportunities, seizing them, and transforming the organization to do so. Chesbrough (2010) argued that the organisation must adopt a positive attitude towards BMI, especially since some processes will fail. Additionally, choosing internal leaders which are responsible for the BMI process is critical. Based on the literature it can be argued that a company that pursues strategic entrepreneurship, senses opportunities and has a strong leader is more likely to successfully innovate the BM. Moreover, several scholars have mentioned the importance of experimentation during the BMI process (Chesbrough, 2010; Cavalcante, 2014; Geissdoerfer et al., 2017). From an examination of the literature, experimentation has been identified both as a capability (Chesbrough, 2010) as well as a phase in the BMI process (Cavalcante, 2014; Geissdoerfer et al., 2017). In particular, the attitude

towards experimenting new solutions or scenarios is fundamental, especially when managers acknowledge that the traditional BM is not enough to survive in the market (Chesbrough, 2010). For instance, Cavalcante (2014) identified experimentation as a "pre-stage" through whom the company detects the challenges and builds prototypes. Similarly, Geissdoerfer et al. (2017) placed experimentation as a phase within the BMI process as an important step before designing the elements of the BM in detail. What has been shared by most is that experimentation is challenging. In fact, employees may be discouraged if they do not perceive any defect in the traditional BM; moreover, managers can be resistance to trial-and-error processes, since these can also fail and not lead to any change. However, overcoming these barriers is essential in order to set a favourable environment for BMI to happen (Chesbrough, 2010; Günzel and Holm, 2013; Cavalcante, 2014).

Finally, some scholars have suggested tools in order to deal with the complexity of the BMI process. For example, Evans and Johnson (2013) presented a tool aimed at detecting the feasibility of the BM transformation in terms of financial and operational terms. They proposed the *Innovation Readiness Level* to measure the readiness to each department to react and implement a new BM. With this tool, managers can have a rough estimate about the difficulty and expenses needed for the implementation of the new BM. By following another perspective, Deshler and Smith (2011) propose three tools to easy the process of BM transformation by connecting strategy and organization choices. The first, *ANCHOR*, allows the company to understand the customers' needs and how the company can satisfy them. With the second tool, *Differentiators*, the company identifies its distinctive capabilities needed to give unique value to the customers. These two tools are needed in order to implement a business model. The last tool proposed, the *Functional Alignment Matrix*, drives the change towards a new BM across all functions, by ensuring that all the functions are aligned during the process.

2.3.4 Business Model Innovation Drivers and Barriers

From an examination of the literature, a variety of factors potentially driving an innovation in the traditional business model has been found. First, BMI can be a reaction to both internal and external threats and opportunities (Bucherer et al., 2012). For example, many organizations pursue BMI as a defensive act to save a poor core business. However, rather than being forced to react to threats, using a proactive approach may efficiently allow companies to leverage new growth opportunities (Bucherer et al., 2012; Lindgardt et al., 2009). In relation this this, Foss and Saebi (2017a) mentioned some drivers related to seizing and shaping opportunities. In particular, the

emergence of new digital technologies, as well as some practices like open innovation allow the company to come in contact with different environments and actors that can stimulate BMI.
Other scholars have focused on dynamic capabilities as stimulators of BMI. For instance, some drivers were identified in: collective learning, advantage-seeking capability, trust-advancing capability, intra-management cooperation routines and operational process planning (Wirtz and Daiser,2016). All those factors have the potential to stimulate a company to implement a business model innovation.

Apart from the drivers of BMI, a special attention has been paid by the research to the barriers and obstacles that arise before, during and after the BMI process. In particular, from the examination of the literature, it was found that the barriers can arise from the company itself (internal) or from the external environment (external).
Among the internal barriers the following have been cited: inertia and resistance to change due to stickiness to repetitive routines (Frankenberger et al., 2013; Hargadon, 2015; Laukkanen and Patala, 2014; Eichen et al., 2015); organizational challenges during the implementation (Frankenberger et al, 2013; Hargadon, 2015); understanding the drivers and changes needed, and how to place those within the firm's logic (Frankenberger et al., 2013; Laukkanen and Patala, 2014).
Among the external barriers the following have been cited: regulatory silos, which imply the lack of encouragement to innovate (Laukkanen and Patala, 2014); short-terminism of the market and non-acceptance from customers (Laukkanen and Patala, 2014; Eichen, 2015).
Some scholars have classified the barriers into categories, to offer a holistic view of all the challenges that can arise before, during and after the BM process. For example, Eichen et al. (2015) distinguished between the following categories of barriers: awareness-related (difficulties in fully understanding the concept of BMI); search-related (dealing with the environment designed to search for solutions, which sometimes is too narrow); system-related (issues arising from complexity); logic-related (integrating the new ideas into the firm's logic); culture-related (overcoming the not-invented-here syndrome). Similarly, Laukkanen and Patala (2014) identified some challenges that can be: regulatory-related; market and financial-related; behavioural and societal-related. These researchers also propose some ways to overcome those barriers, for example through entrepreneurial activities, development and diffusion of knowledge, mobilization of resources and creation of legitimacy.

2.3.5 BMI frameworks

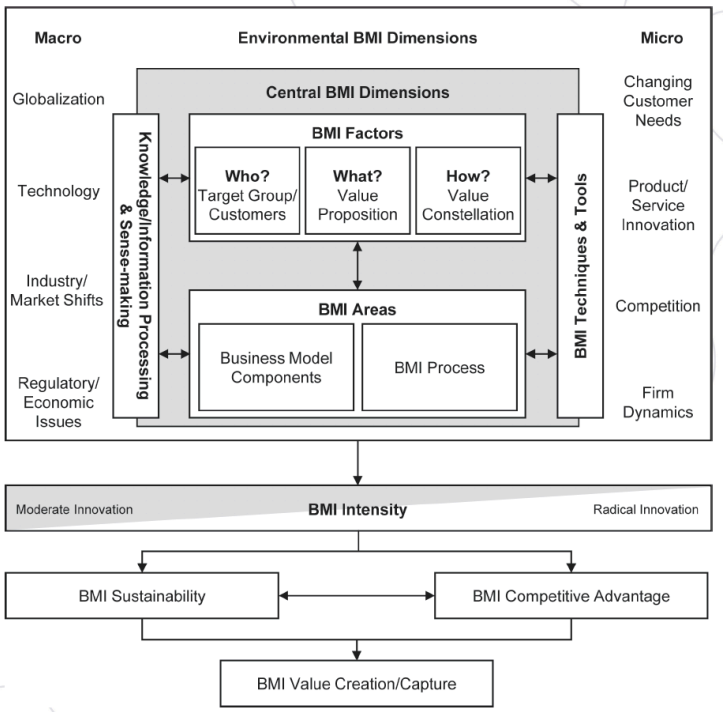
Despite BMI is a new field of research, several frameworks have already been proposed and discussed by different scholars. In particular, different perspectives have been found at the foundation of the frameworks. Some of them gives a perspective about the phases (as already illustrated in section 2.3.3) (Frankenberger et al., 2013; Wirtz and Daiser, 2018; Geissdoerfer et al., 2017). Other scholars give their contribution through frameworks based on a change in how the value is created and deliver to the customers (Günzel and Holm, 2013; Taran et al., 2016). Other scholars offer a more static vision of the BMI, by mapping the BMI (Florén and Agostini, 2015) or by offering a holistic view of the phenomenon (Wirtz and Daiser, 2017).

For example, Günzel and Holm (2013) grouped the BM components (according to Osterwalder and Pigneur, 2010) into 4 categories, to detect which of those was targeted for changes during the BMI process. The built this "4Vs" framework to study the BMI process in the Danish newspaper industry, through any change in:

- *value proposition*: value that the firm wants to deliver to its customers;
- *value delivery*: customer segments, channel, customer relationships;
- *value creation*: key resources, key activities, key partners;
- *value capture*: revenue structure and cost structure.

The most recent of the BMI frameworks is shown in the figure below and belongs to Wirtz and Daiser (2017). The authors gave insights into the BMI phenomenon presented in a conceptual framework. Compared to previous research this construct gives a further comprehensive and holistic picture of the dimensions of BMI. The authors identified six important components of a BMI framework: environmental BMI dimensions; central BMI dimensions; BMI techniques and tools; knowledge/information management; BMI intensity and BMI outcome/impact. Furthermore, the authors highlighted the combination of BMI sustainability and BMI Competitive Advantage in order to reach the overall objective of BMI value Creation/Capture.

Figure 5. *Business Model Innovation Integrative Framework*



Source: Wirtz and Daiser (2017)

Florén and Agostini (2015) developed a framework useful to map the BMI and analyzing it. In their bi-dimensional perspective, the BM changes can be caused both by changes in the activities performed by the company, and by changes in the structure (how the activities are linked). They collocate the change in structure on the vertical dimension, and the change in activities on the horizontal one, as shown in the Appendix. Both changes can be described in terms of conservative or radical change and, depending on how they are combined, they can originate the 4 types of BMI. The authors further describe each example, in terms of old BM and new BM.

As found from a review of the literature, BMI allows to create and deliver value in an inimitable way. Companies increasingly rely on external resources, sometimes even collaborating with competitors in order to achieve a successful innovation outcome (Huang et al. 2018). Therefore, innovation becomes a networked phenomenon. In fact, rather than go alone, companies prefer to build relationships with other players, that are grouped within the concept of "Innovation Ecosystem", presented in the following section.

2.4 Innovation Ecosystem

In order to beat the competition in a dynamic environment, companies partner with external players to access heterogeneous resources and knowledge and co-create value through cooperative relationships (Huang et al. 2018; Kapoor and Lee, 2013; Ander and Kapoor, 2010). To access highly specialized expertise, companies often make use of *open innovation*, allowing their boundaries to vanish towards the achievement of a superior grade of innovativeness. In fact, the openness both to internal and external ideas from different actors and organizations allows the company to pool resources together to accelerate innovation and increase the innovative output (Sirkka L. et al., 2012; Chesbrough, 2017). Therefore, competition is no longer between enterprises, but rather between "ecosystems" (Suseno Y. et al, 2018; Adner and Kapoor 2010; Isckia and Lescop 2013).

2.4.1 Origins of the concept

The concept of "ecosystem" has its roots in the natural sciences, where it represents a set of different communities of organisms that interact with each other (Pucci et al., 2018). In the biological ecosystems, the different participants are mutually dependent on each other for their survival. Their combined actions and collaboration lead to the development of the whole ecosystem which has, therefore, a dynamic nature (Iansiti and Levien 2004; Moore 1998; Peltoniemi and Vuori, 2004).

The ecosystem construct has been utilized by different scholars in a variety of analogies; for instance, the following constructs have been identified by Peltoniemi and Vuori (2004) and Pilinkienė and Mačiulis (2014):

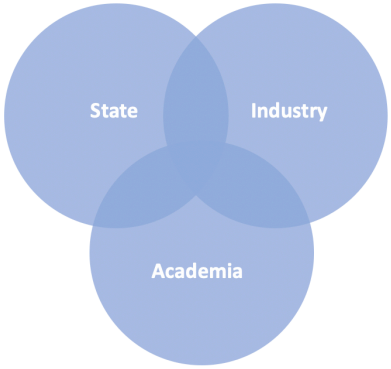
- Industrial Ecosystem;
- Entrepreneurship Ecosystem;
- Business Ecosystem;
- Digital Business Ecosystem;
- Innovation Ecosystem.

From an analysis of the literature, it can be argued that the origin of the Innovation Ecosystem concept is twofold: it originates from the System Innovation (SI) theory (Faissal Bassis et al., 2018) and from the concept of "Business Ecosystem" (BE), first proposed by Moore (1993).

The concept of *Systems of Innovation* emerged in the 1980s from the collective work of Freeman, Lundvall and Nelson (Faissal Bassis et al., 2018). In its most common definition, SI is viewed as a network of institutions (public and private) who collectively diffuse new technology. Furthermore, SI provides the structure for the government to influence the innovation journey through different policies. Because of the innovativeness of the SI concept, it has been studied from different perspectives (Faissal Bassis et al., 2018). A common approach taken by the SI literature highlights the spatial dimension of innovation, where geographical proximity is a key enabler of innovativeness in the so-called *local milieux* (Pekkarinen et al., 2006). Examples of this phenomenon are the Silicon Valley and the Route 128 in the USA (Ozman M., 2009). Other scholars, conversely, emphasize the important of organizational and institutional proximity in order to stimulate innovation (Boschma, 2005).

Considering the spatial perspective, the concepts of *Regional Systems of Innovation* (RSI) and *National Systems of Innovation* (NSI) are the most common. The former implies a collaboration of different innovation networks to boost innovation capabilities on a regional level (Pekkarinen et al., 2006; Faissal Bassis et al., 2018), while the latter refers to the systematic interdependencies aimed at increasing the innovativeness of a country's environment (Faissal Bassis et al., 2018). Taking a step further into the SI theory and open innovation, the concept of *Innovative Ecosystem* emerges as an additional notion to analyze the process of innovation and its actors (Faissal Bassis et al., 2018). Despite having in common the study of the innovation phenomenon, according to Mercan et al. (2011), the SI theory is static compared to the dynamic nature of the IE, which is granted by the interaction of the different participants. For this reason, innovation ecosystems constitute a dynamic evolution of the SI models, where the creation of knowledge is favoured by the interactions between three major actors, as pointed out by Etzkowitz and Leydesdorff (2000) in their *Triple Helix Model*.

Figure 6. *Triple Helix Model*



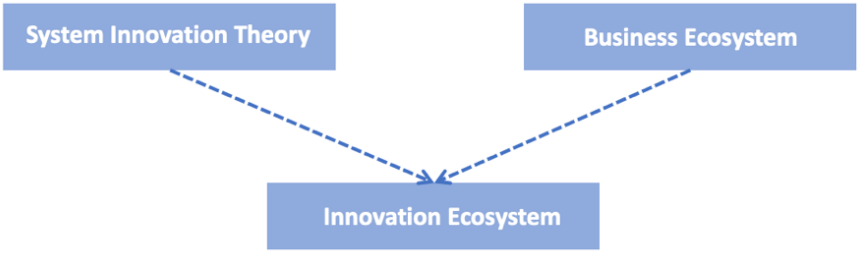
Source: Etzkowitz and Leydesdorff (2000)

The more generally accepted view considers the innovation ecosystem as an evolution of the Business Ecosystem concept, first developed by Moore (1993). In his view, an enterprise is not part of a determined industry, rather it is part of a business ecosystem, which is seen as an economic community supported by organizations and individuals that interact. In a business ecosystem, there are several actors interacting together in order to co-create value and generate disruptive results. Customers, producers, competitors and other stakeholders are all included (Peltoniemi and Vuori, 2004). However, the heterogeneity of the participants leads to the impossibility to determine the boundary conditions of an ecosystem, which are considered open and permeable (Gulati et al., 2012). From the above-mentioned definitions of a business ecosystem, four key characteristics emerge: fragmentation; interconnectedness, cooperation and competition (Iansiti and Levien, 2004). In order for the business ecosystem to prosper and flourish, the "keystone species" play a significant role in ensuring the success of the co-evolutionary process (Peltoniemi and Vuori, 2004). Specifically, according to Iansiti and Levien (2004), it improves the overall health of their ecosystems by:

- Increasing the ecosystem productivity;
- Enhancing ecosystem robustness by the incorporation of technological innovations;
- Allowing niche creation through the offering of innovative technologies.

As a result, removing the keystone organization from its ecosystem will result in a collapse of the entire ecosystem, which evolves around the keystone's activities. To summarize, a keystone's task is to ensure the ecosystem health through the implementation of two strategies: the *creation of value* and the *sharing of value* with the ecosystem participants (Iansiti and Levien, 2004). The following figure summarizes the origins of the IE concept.

Figure 7. *Origins of the Innovation Ecosystem concept*



Given that companies must innovate to survive in a dynamic and competitive environment and that a business ecosystem requires both technological innovation and market competition to evolve (Faissal Bassis et al., 2018), it is appropriate to shift the attention to the *Innovation Ecosystem*.

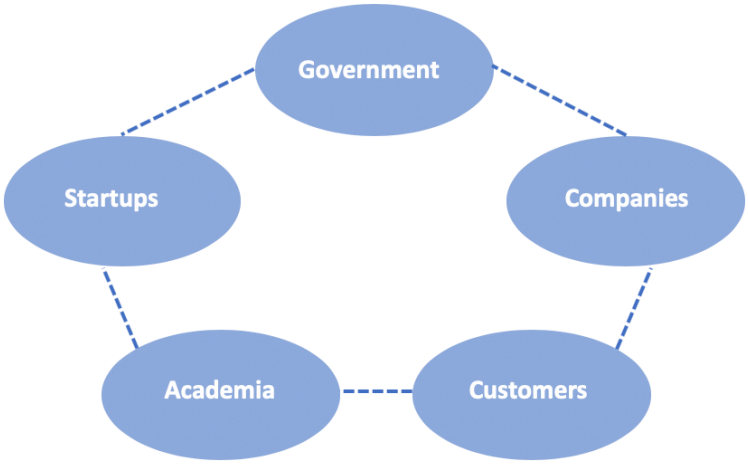
2.4.2 The "Innovation Ecosystem" characteristics

The Innovation Ecosystem (IE) has gathered a lot of definitions over the years, due to the variety of scholars that have focused on analyzing this concept.

Autio and Thomas (p. 3, 2014) defined it as "*a network of interconnected organizations, organized around a focal firm or a platform, and incorporating both production and use side participants, and focusing on the development of new value through innovation"*. They underlined that the focus of an innovation ecosystem is not a product, but rather the development of new technologies and capabilities. In addition, they propose to look at the IE as an "evolving community", rather than an industry. Another definition is offered by the Stanford University's Innovation Ecosystem Network, which defines IE as "*the inter-organizational, political, economic, environmental, and technological systems through which a milieu conducive to business growth is catalyzed, sustained, and supported*" (Pilinkienė and Mačiulis, 2014).

From the definitions of IE, the perception of it as a network of actors emerged. The composition recalls The Triple Helix Model (Etzkowitz and Leydesdorff, 2000), which proposes three main actors: Businesses, Government and Academia. Furthermore, according to Pucci et al. (2018) customers, producers and other stakeholders are all included. Finally, Nambisan and Baro (2013) mention startups as an actor forming the network. The figure below shows the five main actors of the Innovation Ecosystem.

Figure 8: *Innovation Ecosystem Actors*



As within a biological system, also in the IE there are several dynamics and equilibria to maintain (Jackson, 2011). However, these are economic rather than energy dynamics. Furthermore, along with business relationships, the innovation ecosystem comprises informal relationships that

facilitate the flow and sharing of knowledge (Mercan et al., 2011). As mentioned by Xu et al. (2017), having a successful innovation ecosystem allows for the creation of a value that the firms would not be able to create alone.

Looking at the characteristics of IE, numerous contributions have been made by the academics. For example, several scholars identified the following three characteristics within an IE: interdependencies among the members; a common set of goals; a shared set of skills and knowledge to achieve superior performance (Adner and Kapoor, 2010; Iansiti and Levien, 2004). Furthermore, Autio and Thomas (2014) proposed to look at the following aspects when designing value creation and value appropriation within an innovative ecosystem:

- *Control mechanisms* used by firms to influence the ecosystem. Examples are shared platform, critical assets, pre-emptive alliances;
- *Value creation dynamics* used to create and transmit value to other participants;
- *Control migration* that can arise if a company lose its position within the ecosystem;
- *Value externalities*, which affects the value dynamics within the ecosystem.

Some scholars divided IE into sub-components. Jackson (2011), for instance, pointed out the duality of the IE: on one side there is the *Research economy*, driven by fundamental research; on the other side there is *the Commercial economy*, driven by the marketplace, whose resources are invested in the research economy to generate profitable innovation. When this happens, the ecosystem is said to be healthy, and the two economies find their equilibrium. In the same vein, Xu et al. (2017) have recently detected three sub-components of an innovation ecosystem, which are complementary and synergistic. The science ecosystem, which is aimed at generating knowledge; the technology ecosystem, which generates industrial knowledge through applied technology; the business ecosystem, which has the objective to facilitate the release of products and services to the commercial economy.

2.4.3 Types of Innovation Ecosystems

The variety of actors involved in the innovation ecosystem and the multiplicity of the interconnections established among them lead to emergence of different organizational forms (Huang et al. 2018). A description of the four major types of innovation ecosystems is offered below.

Hub Ecosystems. The hub-based innovation ecosystem has emerged as an important factor in the field of entrepreneurship, particularly in the technology sector. An essential role is played by the hub firm, which acts as the leader of the ecosystem, setting common goals and shared values, and deciding on the admission of other participants to the whole ecosystem. Moreover, the lead firm possesses a special power that allows it to "run the show", offering the innovation platform and the basic knowledge to all its members that build on it their specific innovations. As a result, the entrepreneurs leading the companies have to play dual and conflicting roles: they are *followers* of the whole ecosystem, but they need to be *leaders* in their companies' competition environment (Nambisan and Baron, 2013). An example of a leader in its hub-ecosystem, according to the authors, is Apple.

Platform-based ecosystems. In these ecosystems, the platform plays a functional role as the foundation of the whole ecosystem. In fact, platforms are set up by the keystone organizations with the aim to offer to the participants a common interface that can be leveraged by them to build their own products. The leader organization coordinates the whole ecosystem by setting a governance architecture that, in turn, influences the mechanisms through whom the ecosystem creates value (Tiwana et al, 2010; Iansiti and Levien, 2004). As claimed by Chesbrough (2011), the platform construct has the advantage to stimulate small companies' creativity and entrepreneurship, allowing them to exploit the tangible and intangible assets of the keystone firm. Example of platform-based ecosystems are Amazon, Apple, Facebook and Google (Gawer and Cusumano, 2014; Thierry and Lescop, 2013).

Open Innovation Ecosystems. These ecosystems are based on the paradigm of open innovation, which leads the various actors to take advantage of external knowledge and skills in order to achieve a superior performance. Being open to other actors of the ecosystem benefits the ecosystem as a whole and favors the collaboration of different actors towards the achievement of a common objective. Some examples of companies that make use of this paradigm are IBM, Unilever, Intel, Procter & Gamble (Chesbrough, 2017).

Digital Innovation Ecosystems. In these ecosystems, the creation of value is dependent on the use of digital technologies (Yoo et al., 2010). Digital innovation is the foundation of the whole ecosystem, and organizations pursue it through continuous social media interactions with the various stakeholders forming the ecosystem (Suseno et al., 2018). Such interactions, therefore, give birth to the digital innovation ecosystem, which is fluid and evolves over time (Bongsug, 2018). In their study, Suseno et al. (2018) cite *Storytel* (a Swedish company offering streaming

audiobooks) as an example of company operating in a digital innovation ecosystem. Such interactions, therefore, give birth to the digital innovation ecosystem, which is fluid and evolves over time.

2.5 Summary

To summarize, this section has given an overview and examined concepts within innovation, BM, BMI and IE. According to the business model, the most discussed and used framework is the Business *Model Canvas*. It was first introduced by Alex Osterwalder and Yves Pigneur (2010) and contains the concept of the nine building blocks which constitutes how the company "does business".

The literature review conducted about BMI has identified no unified definition about the concept, and the main contradiction concerns how many building blocks need to change. Researchers have dimensionalized BMI in terms of novelty and scope as well as moderate vs radical. Furthermore, BMI process is complex, and it often described in terms of different phases. Along these phases various barriers are identified as well as capabilities. Different frameworks have been identified to analyze the BMI. In particular, the "4Vs framework" was elaborated to analyze the changes in the business model in terms of: value proposition; value delivery; value creation; value capture. The last part of the section presents the concept of IE, representing a network of actors that collaborate to achieve shared results. In particular, five main actors have been identified: government, academia, companies, startups and customers. The IE has been found to have two origins: the System of Innovation theory and the Business Ecosystem construct. Furthermore, four main types of IE have been mentioned in the literature: Open IE; hub-based IE; platform-based IE and digital IE. The theoretical background presented in this section served as a basis to develop the framework used in the thesis, which will be presented in section 3.2.3.

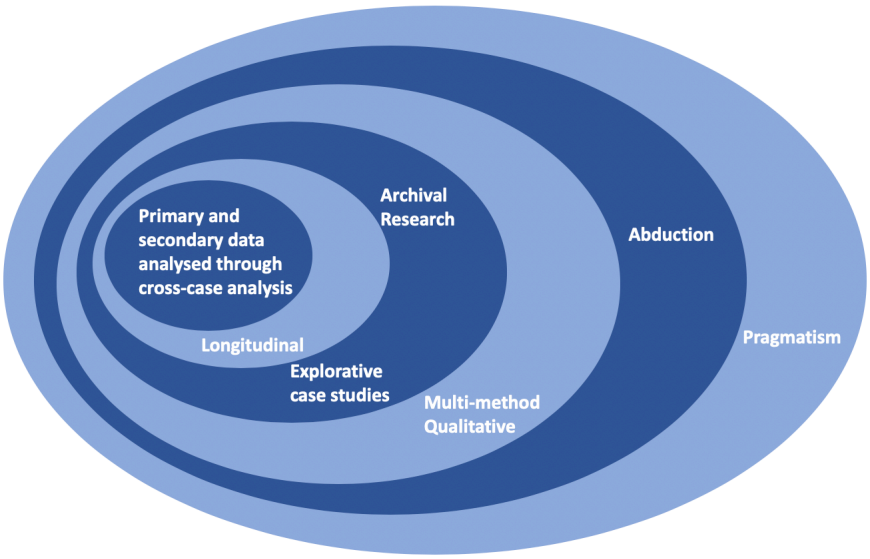
3. Methodology & Method

In this section, the choice of research philosophy, research purpose, research approach and research strategy will be presented and discussed. Moreover, how the data have been collected and analyzed as well as the trustworthiness of the research will be examined.

3.1 Methodology

In order to understand the patterns of Business Model Innovation in the context of an Innovation Ecosystem an exploratory study was conducted using an abductive research approach. This thesis employs a pragmatism philosophy. In line with exploratory study a multiple-case study was conducted, which allows us to examine the phenomenon in a real-life context. Qualitative data was collected through archival records and interviews. Conclusively, the thesis trustworthiness is based upon credibility, transferability, dependability, and confirmability. Additionally, triangulation was applied. The *Onion Model* the method and the methodology used in this thesis.

Figure 9: *Onion Model*



3.1.1 Research purpose

There are four main research types: exploratory, descriptive, explanatory and causal studies. The last three mentioned are more appropriate when the problem is clearly defined and when trying to understand "why" things are the way they are. BMI is a relatively new topic, and no research was

identified regarding the relationship between BMI and IE. This makes an exploratory study most suitable for the purpose, as this type of study focus on examining what is happening and to seek new insights into the topic (Saunders et al, 2009). This is further beneficial for this study as it allows for flexibility and change direction of the research if necessary.

3.1.2 Research philosophy

Research philosophy refers to the development of knowledge and the nature of that knowledge and consists of important assumptions about how researchers view the world. These assumptions are often subconscious and will be taken at every stage in the research process; thus, the chosen method is based on the philosophy of the research. The philosophy should be considered at an early stage in the thesis, since it will influence how the research question is understood and how the findings are interpreted. There are five major philosophies: Positivism, Critical Realism, Interpretivism, Postmodernism and Pragmatism (Saunders et al, 2009). The nature of this study is considered pragmatist, as the process starts with a problem seeking to contribute with practical solution and to drive future research with an explorative study.

3.1.3 Research approach

The research approach concerns the relationship between theory and research. A research approach can either be deductive, inductive or abductive. A deductive approach refers to the development of a theory or hypothesis based on previous research. In contrast, an inductive approach develops a theory based the results from collected data (Saunders et al, 2009). This thesis moves back and forth between theory and empirical findings and is therefore a combination of the two previous mentioned research approaches. Therefore, it can be referred to as an abductive approach. Abductive reasoning allows for flexibility; for instance, it will enable us to identify BMI patterns within the case companies based on previous literature. Additionally, it allows us to identify new patterns of BMI and compare it with previous literature. The aim is to combine previous literature with empirical data in order to contribute with new theory that could be tested in future research.

3.1.4 Research strategy

In order to fulfil the purpose, a qualitative study has been found to be the most appropriate method. Qualitative research allows to conduct an in-depth study of the contextual conditions (Yin, 2011).

Furthermore, when conducting research there are a number of different research strategies that can be used, and the most common ones are: survey, action research, grounded theory, case study and experiment. When deciding upon a research strategy, it must be considered whether the chosen research strategy can assist in answering the research questions. Additionally, the amount of time and resources available will affect the choice of research strategy (Saunders et al, 2009). As stated, a qualitative study has been conducted, and in order to fulfil the purpose the research strategy chosen is a case study. Considering the explorative nature of the study, this strategy is the most suitable as it allows for flexibility, hence not limited to certain variables which would have happened if an experiment was selected. In particular, multiple case study of four case companies has been conducted. The reason why selecting multiple cases is for us to be able to compare similarities and differences in the BMI practices and IE and to increase the credibility of the findings. Different sub-units within the organization are examined and it can therefore be referred to an embedded case study (Saunders et al, 2009).

Furthermore, an archival research has been applied by using historical documents as the principal source of data (Saunders et al, 2009). The archival research is appropriate for this study as the aim is to explore the changes in BM over time. Furthermore, the changes in BM is examined over multiple years and a longitudinal case study was thus necessary to conduct (Saunders et al, 2009). Data was collected from the year the case company went public (or founded) until 2019. Since the companies were founded at different point in time the time-frame vaires for the case analysis.

3.2 Method

3.2.1 Primary data and Secondary Data

Saunders et al. (2009) state that in order for study to produce a solid result, it needs to comprise both primary and secondary data. Thus, this thesis has combined primary and secondary data in order to get dependable results. The secondary data were collected from academic journals and books found though databases such as *Google Scholar*, *Ebscohost. Copenhagen Business School Library* search system, *Libsearch*. One of the main advantages of using secondary data is the ability to save resources in terms of time and money (Saunders et al, 2009). Furthermore, data was gathered form peer-review articles identified using keywords such as “business model innovation”, ‘business model process”, “innovation ecosystem”, “business model development”, “business ecosystem”, “innovation process”, “business model”. In order to ensure that the secondary data contains the latest findings articles published after 2013 were mainly conducted.

Furthermore, to ensure credibility, articles with high number of citations were prioritized. However, since BMI and IE are rather new theoretical fields, certain articles had a rather low number of citations. Additionally, media publications taken from online journals like The Economist, Forbes and Blomberg were used.

The primary data from case studies were gathered from annual reports, press releases, websites. Furthermore, the annual reports and companies' publications were used as part of the reality being studied, and thus considered as primary data (Saunders et al, 2009). Furthermore, primary data was collected through semi-structured interviews with certain questions prepared. In which order the questions were asked or how extensive the discussion was around each question depended on the answers from the interviewee. Only open-ended questions were asked. The risk of respondent bias was considered, for instance that participant might only share positive information regarding the company. Additionally, bias in the interview caused by language differences were considered. Since the respondents were based in the China, US and India the interviews were conducted over *Skype*. The interviewee's received the structure as well as the main questions a few days before the interview. During the interview an introduction of the topic and structure of the interview was first given. Following, the permission to audio record as well to use the interview's full name were asked. Three out of four participants wanted to stay anonymous; however, the permission to audio record the interview was received. The length of the interviews was around 30-35 minutes. The structure of the interview as well as the main questions can be found in Appendix 4.

3.2.2 Sampling

The interviews for the case companies were all contacted via *LinkedIn*. Before contacting people, certain criteria were settled.

- Senior management position or higher;
- Current employee at the case company;
- Minimum of one year of work experience at the selected company.

In total we roughly 100 people were contacted and 4 individuals with relevant experience answered and were interviewed, as shown in the table.

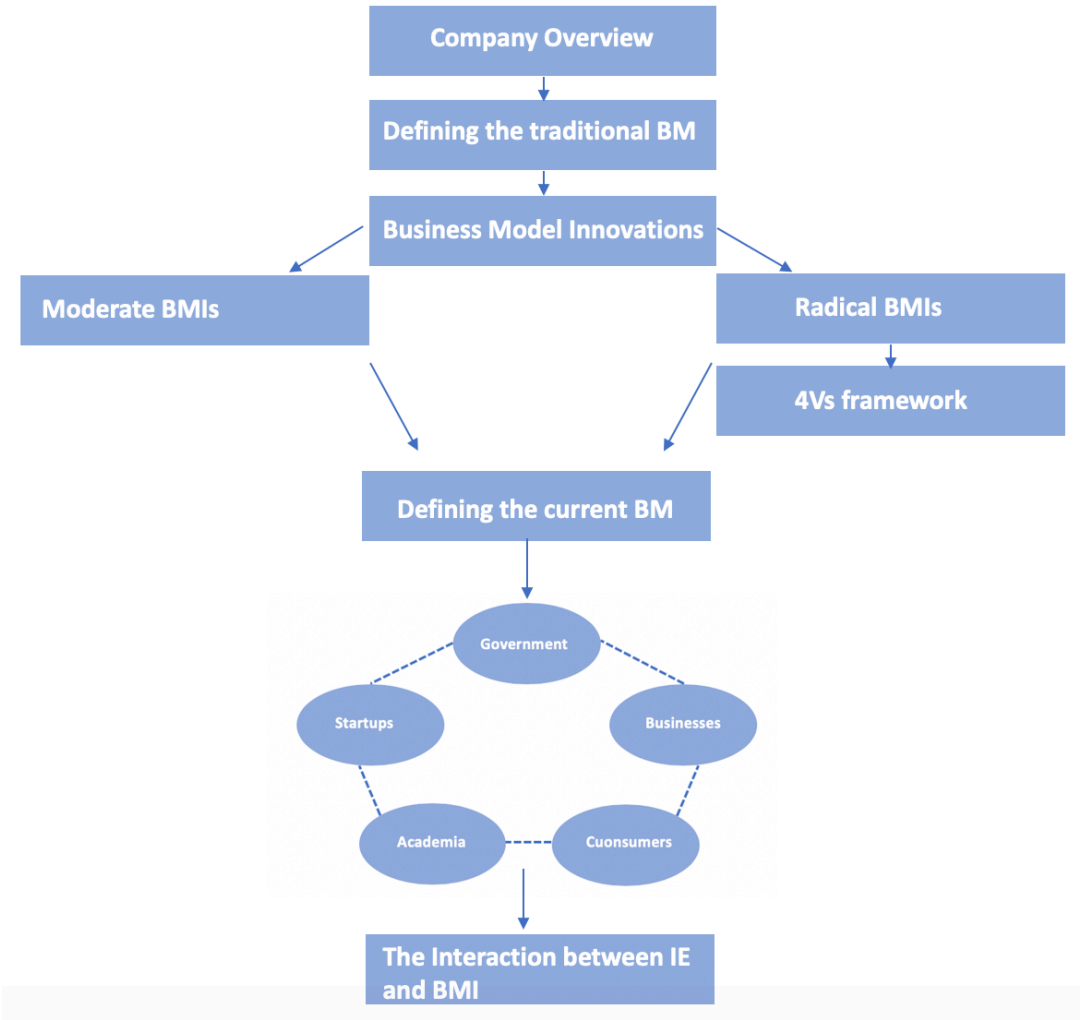
Table 2. *Interviewees' information*

Participant	Company	Position	Work experience	Gender
1	Baidu 百度	Director of in-app Publisher BD Team	3 years	Male
2	Tencent 腾讯	Senior business development manager	4.5 years	Male
3	Tencent 腾讯	General manager Tencent Games	1.5 years	Male
4	mi	Vice President North America	Almost 3 years	Male

3.2.3 Analysis of data

As already mentioned, in order to examine the research purpose a multiple case study was performed. We first analyzed each case study separately for later conducted a cross-case analysis. A cross-case analysis allows is to identify similarities and differences between the cases (Yin, 2011). The structure of the case companies' analysis in presented in the figure below.

Figure 10: *Case studies' structure*



3.2.3 Trustworthiness of research

The trustworthiness of research is an important obstacle that researchers need to address when carrying out a qualitative study as validity and reliability cannot be addressed in the same manner as in quantitative studies. Following four criteria are believed to be advantageous when aiming to conduct a trustworthy qualitative study: credibility, transferability, dependability and confirmability (Shenton, 2004).

Credibility is one of the most important components of trustworthiness, as it reflects the extent to which the empirical findings represent reality (Shenton, 2004). In order to increase the internal validity, triangulation have been applied. Triangulation refers to the strategy of using multiple methods or the use of wide range informants (Shenton, 2004). This research has been conducted

by two researchers with different viewpoints and experiences. Both researchers were for instance attaining all interviews in order to avoid personal preferences or interpretations. Triangulation was also applied by observing the companies though multiple sources such as website, media, online journals. Furthermore, an individual who feels comfortable is more likely to share information. This was considered when conducting the interviews. In order for the participants to feel comfortable, all had the ability to be anonymous as well as skip questions if necessary. The second criteria, transferability, regards the degree to which the findings can be applied to different situations. Transferability can be questioned since qualitative studies often use small samples (Shenton, 2004).

In order to deal with the issue regarding transferability, each case company and the contextual factors have been described extensively. Additionally, a section of background information regarding China was included in the introduction. Hence, if the reader understands the environment in which the study was carried out as well as other contextual factors, it may facilitate the comparison of the phenomenon described with their own situations (Shenton, 2004). Additionally, the focus was on providing clear theoretical and managerial implications. This allow the finding to be transferred to other contexts, such as different types of companies or different countries.

The next criteria is dependability, which refers to the importance of presenting in detail how the study was conducted in order to enable future researchers to repeat the work (Shenton, 2004). The dependability of this research is assured though an extensive method explaining the steps of the process. The final criterion is the confirmability, which is associated with the importance of ensuring objectively throughout the research process (Shenton, 2004). As mentioned, the fact that the research has been conducted by two researchers decreases the risk of own personal preferences and subjective biases.

4. Case Studies

In this section the empirical data collected during the research is presented. Each case study is examined separately. First, a company overview is offered, followed by a description of the business model innovations pursued over the years. Finally, the company's Innovation Ecosystem is presented, followed by a description of how the different IE actors interacted with the BMIs.

4.1. Baidu

4.1.1 Company overview

Baidu Inc. is a multinational technology company and the leading Chinese language internet search provider (Baidu, 2006; 2018). The company was founded in 2000 by Robin Li and is headquartered in Beijing (Baidu website). Baidu has often been labeled "China's Google" (Shu, 2013). In fact, some state that Baidu is a copycat of Google; however, Robin Li actually accused Larry Page and Sergey Brin (Google's founders) for copying his idea. Already back in 1994, Li began to research on algorithms for a search engine. In 1996, he developed *RankDex*, the first link analysis system. Soon after, Brin and Page were developing a similar type of algorithm called *PageRank*, which would be used in Google (Williams, 2015). Li further stated "*I never felt that I was a copycat, ever since the first day I established Baidu"* (Baidu, 2006, p.5) The company was first recognized under the name *Baidu.com Inc.*; however, in December 2008 the organization was renamed to *Baidu Inc.* (Baidu, 2019). Robin Li serves today as chairman and the CEO. In contrast to Alibaba and Tencent, which have been led by a stable management with broad decision-making power, Baidu's management has been rather unstable. Li was forced to make most of the important decisions; however, this could be considered beneficial for the company. In fact, in *Time Asia 2018* Li was referred to as *The Innovator* (Campbell, 2018). Some argue that the success of Baidu was a result of Google being blocked in China. However, this can be questioned since Baidu was already dominating the Chinese search market before the withdrawal with above 60% of market share, compared to Google's 33% (Jie, 2016). In fact, baidu.com is the most trafficked website in China and the fourth largest website globally

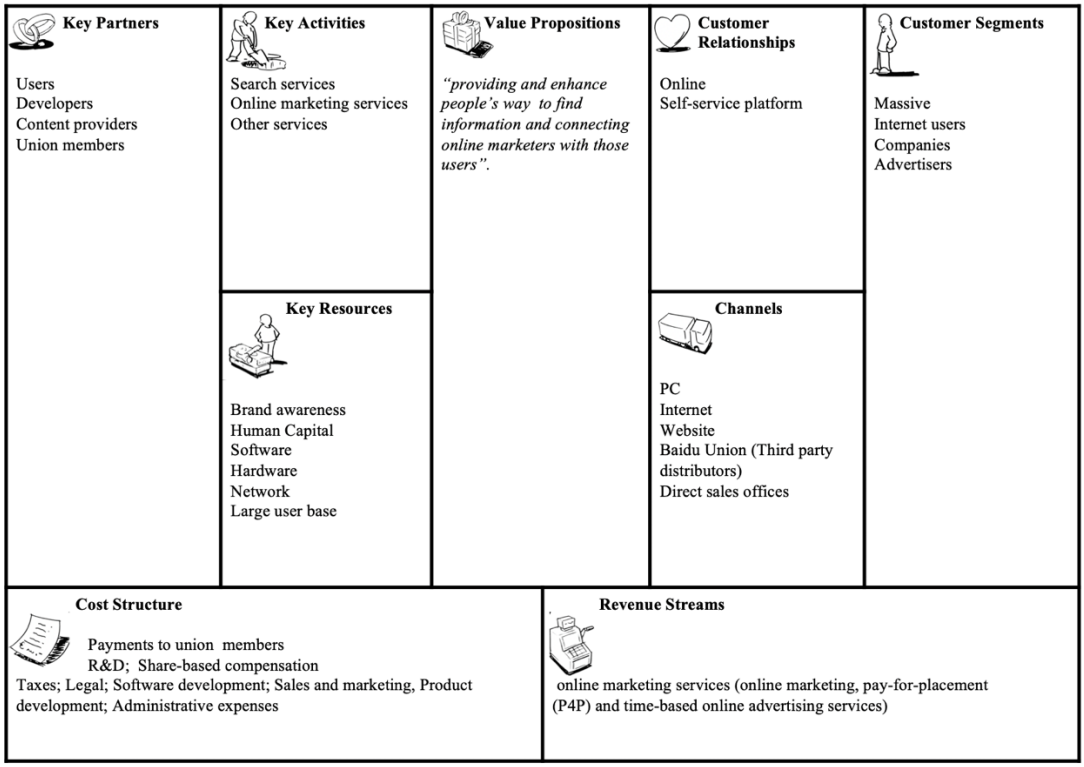
(Alexa, 2018). Today the company is offering additional internet-related services and products and artificial intelligence (AI) (Baidu, 2019).

Already form the early days, the management stated that the internet was much about culture as it was about technology (Baidu, 2007). This is one of the main reasons why Baidu managed to be so successful in China. The majority of the operations is conducted in China, representing approximately 98.9%, 97.8% and 97.8% of the total revenues in 2015, 2016 and 2017 respectively (Baidu, 2019). As mentioned, the organization commenced operations in 2000 and first achieved profitability in the first quarter of 2004. In August 2005, the company was listed on NASDAQ global market under the symbol "BIDU" (Baidu, 2006). In 2017 Baidu had over 39 thousand employees and achieved a total revenue of US$ 13.034 billion (Baidu, 2019). In addition to be the most visited website, Baidu is the largest performance-based online marketing platform in China. Initially, it generated revenues primarily form online marketing services such as performance-based online marketing, pay-for-placement (P4P) and time-based online advertising services (Baidu website). The auction-based P4P platform enables the customers to bid for priority placement of their links in the search results and connect with their customers. Baidu was the first auction-based P4P service provider in China (Cuofano, 2018). The company's business model was criticized few years later; for instance, it was accused of providing biased health-related results. In April 2016, a 21-year-old man died from cancer. Before the death, he accused Baidu for promoting an expensive treatment which was not accurately tested, and thus failed to save his life. This incident was globally spread, and Baidu was going to experience the largest crisis in the company's history (Carsten, 2016).

4.1.2 Defining the traditional Business Model

The original business model will be illustrated using the Business Model Canvas. From the beginning Baidu was offering search services for major corporations such as *Sina* or *Soho*. Although, the Canvas illustrates Baidu's BM after the establishment of its own independent search engine in 2001.

Figure 11. *Baidu's original BM Canvas*



4.1.3 Baidu's Business Model Innovations

In 2005 Robin Li stated: *"I always tell people that Baidu is a very focused company. We are focused on our core competency and we are focused on the long-term" (Baidu, 2006, p.5).* The increased usage of AI and mobile devices opened up for new and exciting business models and ways to interact with technology (Baidu website). Baidu has undergone several BMIs, some beyond the core business. In 2017, the company's mission statement was updated to *"Baidu aims to make a complex world simpler through technology"* (Baidu, 2019)

Table 3. *Baidu Business Model Innovations*

Business Model Innovation	Description	Year
Independent Search engine	From the beginning Baidu was offering search services for major corporation. Due to low profitability, Li decided to make an independent search engine for the mass population (Williams, 2015). By breaking away from the initial role as a technology provider for other corporations to establish its own independent search engine, the company went from one BM constellation into a new one. In terms of novelty this was not a BM new to the industry, and according to Foss and Saebi (2017) this can be referred to as an Evolutionary BMI.	**2001**

For-profit model	Baidu gained a first-mover advantage over companies such as Google and Wikipedia by managing to turn the not-for-profit online encyclopaedia which previously relied on voluntary funding, into a for-profit model (Hylden, 2016). Regarding the new revenue stream, it can be argued that the organisation conducted a Focused BMI (Foss and Saebi, 2017b).	**2001**
Community-based services	A higher demand of community-based services was recognized, and the company responded with the launch of: Baidu Post Bar (a query-based searchable community allowing users to exchange view and share experiences); Baidu Knows (platform where users can post specific questions for other users to respond) and Baidu Tieba (first chinese-language query-based online community system) (Baidu, 2007). Since new activities were included in the BM and they were complementary to the core business, it is considered an Evolutionary BMI (Foss and Saebi, 2017b).	**2002-**
Entertainment	Baidu launched services such as: Baidu Music, Baidu Media Player, Baidu Games and Baidu Movies (Baidu, 2012). The services were search-related and shared similarities with the original model. Furthermore, Baidu established the independent iQiyi, an online video platform. The BMI can be considered Complex, since it represented a new business segment for the company and delivered new value to the industry (Foss and Saebi, 2017b).	**2010**
E-commerce	Baidu launched the online C2C platform "Baidu Youa". Baidu Youa, an e-commerce platform through which merchants can sell their products and services at Baidu-registered stores. Baidu Youa continued the tradition of providing the best possible online experience for the users (Baidu, 2008). The BMI can be considered Adaptive, due to its differences from the original BM (Foss and Saebi, 2017b). Youa was spun off in 2011 in order to operate as an independent company (Jiang, 2011).	**2008-2011**
Online-to-Offline	The company transformed from connecting people with information to connect people with services (Bloomberg, 2015). Large investments were made into online-to-offline services (O2O). Online-to-Offline is a business strategy that assist online consumers find and order offline services and products (Hayes, 2019). Furthermore, various transactional platforms were established, in order to connect online and offline services provided by third-parties. Services such as Baidu Nuomi (group buying unit) and Baidu Takeout Delivery were launched. The BMI can be referred to adaptive (Foss and Saebi, 2017b).	**2014-2018**
Financial services	In 2015 *Du Xiaoman Financial* was established with the focus on consumer finance, mobile payments and internet brokerage businesses (Baidu, 2017). These services go significantly beyond the original BM and were not new to the market; therefore, it can be referred to an Adaptive BMI (Foss and Saebi, 2017b).	**2015**
Business Model Based on AI	In 2015 *Du Xiaoman Financial* was established with the focus on consumer finance, mobile payments and internet brokerage businesses (Baidu, 2017). These services go significantly beyond the original BM and were not new to the market; therefore, it can be referred to an Adaptive BMI (Foss and Saebi, 2017b).	**2016 →**

From the observed BMIs, four were considered as radical due to the significant impact on the BM: Online-to-Offline; Entertainment services; Financial services and AI new businesses. Because of their intensity, these BMIs will be examined more in depth in the following section.

Online-to-Offline

The PC search business was maturing, and the mobile internet market was rapidly growing, opening up for new opportunities. Instead of solely connecting users with information, Baidu also transformed its value proposition: from connecting users with information to connecting people with both information and services through mobile applications. The company started to make large investments in various O2O services. The value was delivered through new channels. In fact, various transactional platforms were established in order to connect online and offline services provided by third-parties. The new offerings allowed customers to make transactions across multiple businesses such as restaurants, hotels and cinemas. Baidu offered services such as: Baidu Nuomi, Baidu Maps, Baidu Connect and Baidu Cloud (Baidu, 2016).

Baidu Maps was the first transactional service launched in 2005. A more radical change happened in 2013, when the company launched the group buying site, *Nuomi*. Baidu Nuomi combined online ordering with offline services like restaurants and cinemas, therefore sharing similarities with the U.S. sector pioneer *Groupon* (Xiaojing and Ge, 2017). Instead of creating its own group buying site, Baidu acquired a 59% equity interest in Nuomi in 2013 and the remaining shares were acquired in 2014 (Baidu website). In addition to improve the value proposition for the customers, Baidu chose to enter the group buying unit in order to access locational data. For instance, a user can search for a location and seek various deals along the way. This information that can be implemented in Baidu Map (Seeking Alpha, 2014).

After the launch of *Nuomi*, Baidu continued to innovate the BM in the same direction by launching Baidu Takeout Delivery, Baidu Wallet as well as Baidu Connect in 2014. In 2015, Baidu announced that US$ 3.22 billion would be invested into O2O over the next three years (Nasdaq, 2015). New revenue streams were captured based on the share of the total transaction value. Even though transactional revenues grew from US$ 216 million in 2013 to US$ 695 million in 2016, the company struggled to capture value which has led to several divestitures. For instance, Baidu sold it food delivery service to Alibaba in 2017 (Bloomberg, 2017).

Entertainment

Baidu had previously invested into entertainment services such as Baidu Music, Baidu Media Player, and Baidu Games. The most significant investment related to the entertainment segment occured when Baidu started to deliver value through a new channel iQiyi. IQiyi was the first online video platform in China to focus exclusively on fully licensed, high-definition and professionally-

produced content. However, it was sometimes referred to Netflix and Youtube of China (Kenwell, 2019). IQiyi was established as an independent company in 2010 and in 2012 Baidu obtained the controlling interest (Baidu, 2012). It is one of the largest internet companies in China in terms of user base (Iqiyi Website). iQiyi was offered through mobile application, similarly to the transactional services. The strategic plan was to integrate iQiyi's content more efficiently into the overall search and mobile services (Baidu, inc, 2012).

Li stated: "*Online video is a key strategic vertical for Baidu as user numbers and time-spend continue to increase exponentially, underscoring the tremendous potential in the sector*" (Baidu, 2012, p, 1.). In particular, each month users spent 9.4 billion hours on average watching video content on iQiYi platform. On the mobile app on average 1.6 hours were spent per day by each user during the year (Baidu, 2019). Baidu captured value from membership services and online marketing services. In other words, the customers of iQiYi primarily comprised online marketing customers and membership subscribers. In 2018, the total amount of iQiyi subscribers were 80.7 million (Liao, 2019).

Financial services

Baidu continued to further innovate the BM by providing financial services. In 2015 a financial service group (*Du Xiaoman Financial*) was established with the focus on consumer finance, mobile payments and internet brokerage businesses. In particular, most financial services involved consumer credit, including education loans and consumer financing in industry segments such as travel, beauty and home decoration (Baidu, 2018). Alibaba, Tencent among other players were already offering similar payment services. Therefore, this BMI can be referred to as an Adaptive BMI (Foss and Saebi, 2017a).

Baidu leveraged its already developed capabilities in a new setting, in order to capture new value. For instance, big data and computing analytical capabilities were used when monitoring and limiting credit risks. The company contended to deliver a new approach to credit risk management (Baidu, 2017). By using AI-based technologies such as facial recognition and fingerprint the aim was to give users more convenient and faster approval. Additionally, big data and other technologies were used to provide an increased creditworthy and transparent wealth management service to investors. In other words, the aim was to deliver improved value proposition. The company created value through interest income earned from provisions on financial services. In 2018 Baidu spun off its financial services, in order to have a more significant focus on its core business and AI new businesses. The financial service group was sold for more than US$ 1.9

billion (Baidu, 2018b). Today the company holds a minority equity interest in *Du Xioman* (Baidu, Inc, 2019).

Business Model based on Artificial Intelligence

As previously mentioned, the auction-based P4P platform model was criticised. For this reason, the BM was adjusted, and the ranking search was no longer determined by how much advertisers the have paid. Instead, it was based mainly on the credibility of the ads (Baidu, 2016b). The change resulted in decreased revenue streams. Additionally, the PC search business was maturing. Baidu conducted another BMI with the aim to increase value capture by diversifying the revenue streams. Significant investments were put in the R&D of AI technology. The company transformed its BM from a search-oriented model to one based on Artificial Intelligence. AI has been used within the core business for many years in areas such as natural language processing, knowledge graph and user understanding (Baidu,2019). However, the new AI businesses include new business initiatives, such as *DuerOS* (voice assistant and related smart device business), *Apollo* (autonomous driving platform), and *Baidu Cloud*. Progress has been made in the commercialization of AI technologies. The value proposition aimed to make a complex world simpler through technology (Baidu, 2019).

The investments in AI are also being applied with the purpose to modify segments such as the healthcare industry. For instance, AI technology is being applied to genetic testing. In addition to leveraging AI into new market segments, the technology is integrated in the current BM in order to improve the quality of Baidu's existing services. For instance, AI is used to enhance user experience in its search business, where voice-recognition can make online searches more convenient (Seeking Alpha, 2017). In terms of value creation, the new AI business initiatives comprise a range of new key activities and key partners which will be further examined when observing the innovation ecosystem. Baidu's current mission is based on a two-pillars strategy: strengthening the mobile foundation and leading in artificial intelligence. (Baidu,Inc, 2019). In fact, in order to focus on these two priorities, "*Baidu sold all departments who didn't relate to AI strategy*" (interviewee 1, 2019). Moreover, the company has a focus on long-term return to the shareholders (Baidu, 2018c).

Table 4. *Summary of Baidu's radical BMIs*

	Online-to-offline	**Entertainment**	**Financial services**	**BM based on AI**
Value Proposition	Connecting people with services	Fully licensed, high-definition and professionally-produced content	Innovative platform to provide internet financial services, and Short-term loans and investment services	Make a complex world simpler through technology
Value delivery	New channels O2O Mobile application New customer segment	Large user base Mobile application New independent platform	New channels Increased customer relationship	Industry as a customer
Value creation	Acquisitions Third-party agencies	Content providers	Big data and computing analytical capabilities Third-party payment licenses	Apollo Shared resources Spinoff of other departments New key partners, (car manufacturers)
Value capture	Revenue from share of transactional value	Revenues from membership subscriptions and advertising	Valued created through interest income earned from provision of financial services Divestures	Expect large revenues in the future

4.1.4 Summary

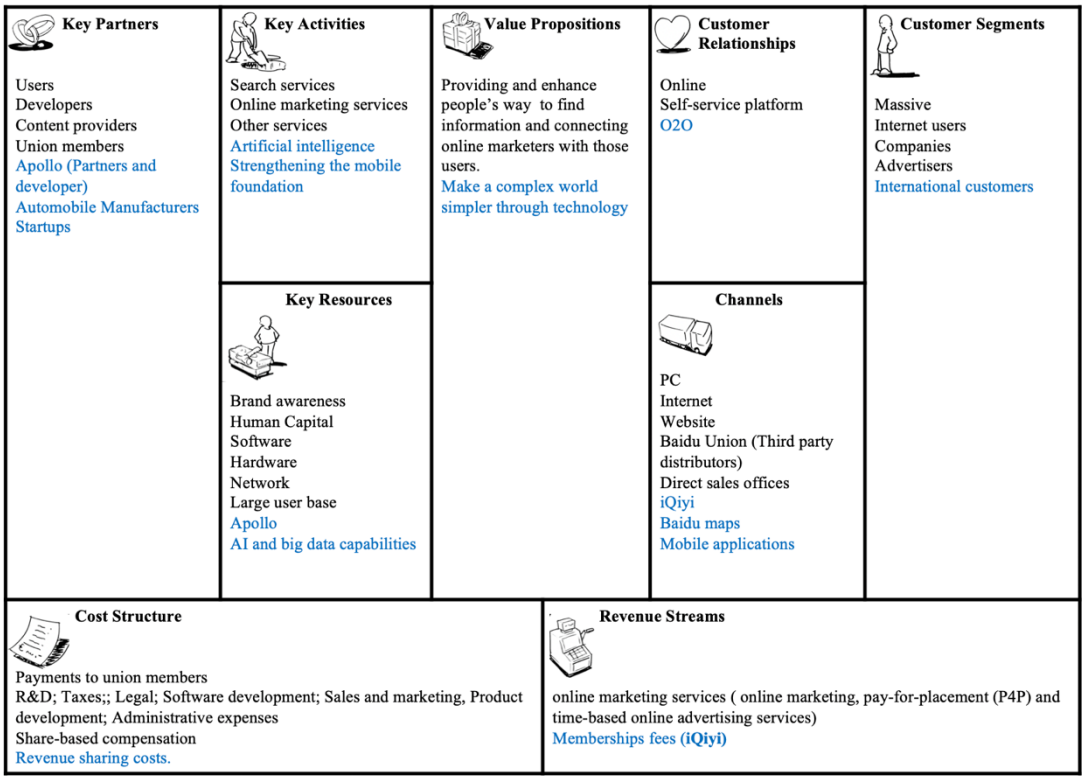
Part of Baidu's growth strategy was to enter into new businesses by leveraging the large internet user base and advanced technology in order to generate new revenue streams. This was done either thorough own development of business lines or strategic investments and acquisitions of other companies (financial services, 2018). Baidu started as the dominant search engine in China. Already after one-year Baidu proceeded its first BMI, and after that the management continued to search for new opportunities. Services such as *Baidu Tieba* (social networking), *Baidu Encyclopaedia* (knowledge sharing), *Nuomi* (lifestyle/group buying unit), *iQiyi* (entertainment), *Apollo* (driverless cars) *Baidu Youa* (e-commerce) were established. Some of the BMI drivers included a maturing PC search business and increasing usage of smartphones as well as new technologies. Both moderate and radical BMIs were identified. The company has invested particularly in services which supported the core business and in areas were the core competencies

could be applied. Instead of launching completely new products and services, Baidu often conducted BMI in areas where an opportunity to redefine market segment existed, such as launching improved financial services. Baidu launched many new business initiatives which later have been divested. Moreover, the company stated that they have been more focused in comparison to the previous years, by scaling down or exiting non-core businesses and increasing investments in AI-powered businesses (Baidu,inc, 2018c).

4.1.5 Defining the current Business Model

The company currently comprises two segments, Baidu core and iQiYi. While iQiYi is an online video platform, Baidu core primarily consists of a search business, online marketing services and new AI businesses.

Figure 12. *Baidu's current BM Canvas*



4.1.6 The interaction between Innovation Ecosystem and Business Model Innovation

As mentioned in the Theoretical Background, companies are no longer working in isolation and Baidu is far from an exception. In order to get a holistic view of Baidu's BMIs its Innovation Ecosystem will be examined. Baidu has aggressively expanded the boundaries of its ecosystem. From the first day Baidu was dependent on the ability to attract content owners in order to create quality to its own content ecosystem. The company believes that the most efficient way to accomplish great things is by working together (Baidu, 2019). Baidu is positioned within an Open Innovation Ecosystem (Chesbrough, 2017). For instance, the company has established the largest autonomous driving ecosystem in the world, *Apollo* (Shu, 2019). The success of Apollo is based on its commitment to allow developers and partners to openly share knowledge and increase the pace of innovation. *(Interviewee 1, 2019)*

Companies

Various companies have been involved during the process of BMI; moreover, the purposes of the partnerships varied over the years, however it created value for both parts. When the company transformed its BM towards O2O, transactional platforms were established, and Baidu had to attract third-parties. Moreover, in order to quickly get a foothold in the market Baidu acquired majority stake in *Nuomi* (Baidu, 2013b).

In order to mass-produce driverless cars Baidu has signed agreement with several well-known companies such as Volvo, BMW group and Ford, as well as some Chinese car makers including *BAIC* and *Red Flag* (Liao, 2018). For instance, regarding Ford, Baidu will contribute with its leading technological know-how as well as the understanding of Chinese consumers, while Ford will contribute with its automotive expertise. This partnership will contribute forward to Baidu's aim of developing autonomous driving vehicles benefiting the customers (Browne, 2018). Similarly, Baidu stated the purpose to collaborate with BMW accelerate the development of autonomous driving (Forbes, 2014). With a similar purpose, many strategic partnerships have been established regarding other AI-enabled businesses. For instance, in 2017 Baidu has entered a strategic agreement with *Huawei* with the objective to lead the new era of mobile and AI technologies. With Baidu's AI technology and Huawei larger user base, new opportunities were developed which were not available in the past (Baidu, 2017). Another example is the strategic partnership signed in 2017 with *Agricultural Bank of China Ltd*, with the goal to build a "intelligent bank" (Baidu, Inc. 2018).

Startups

The company sought to find the best entrepreneurs and offer the tools needed in order to turn vision into reality. Moreover, the company offered resources such as unique data set, technical talent and guidance, and access to data annotation & collection, and view themselves as co-founders of every company invested in. In return the company hope to get inspired and establish partnerships (Baidu website). For instance, Baidu has established a strategic partnership with the California startup Udelv with the aim to deploy self-driving vans. This is an example how the platform can accelerate innovation regarding the autonomous driving industry (Pham, 2019)

Academia

Baidu's collaborations with universities also benefited the BMIs. For instance, in relation to smart products, Dubike was developed together with the the industrial design department of Tsinghua University (Nasdaq, 2014). The organization donated approximately US$ 100 millions to Peking University. The donation was used to establish the *Peking University Baidu Fund*, focusing on research compatible with the company's AI technologies. In return, Baidu hoped to receive support in value creation from Peking University's cutting-edge research in research related to information management, medicine, economics, communications, and sociology (Baidu, 2018).

Government

Many claim that that the reason why Baidu first managed to establish its strong position on the market was due to the Chinese government censorship which forces Google to shut down its operation in China in 2010. Moreover, several of Baidu's BMIs have received strong governmental support especially when it came to promote autonomous driving. In fact, Baidu was named by Chinese government among the "AI national team", with the priority to develop solutions in the autonomous driving (Jing and Dai, 2017). However, Baidu started the development of autonomous driving cars in a proactive manner before the government acceptance. Nevertheless, once the organisation received governmental support the BMI could certainly take off (Baidu, inc, 2018c). Another relevant collaboration is the agreement with the Changsha municipal government to change the transport infrastructure in the city. This opened the opportunity for Baidu to implement self-driving taxi and bus services (Jao, 2018). Similar, a strategic agreement is signed with the local government of Xiong an area in Hebei province, with

the purpose to develop a "smart city" powered by smart transport, voice assistance and cloud computing (Baidu, inc 2018).

Customers

Already form early days, the management claimed that the internet was much about culture as it was about technology. Baidu has a large Chinese customer base and knows its specific needs. This constitutes a barrier for the entry of global competitors in China, which is one of the main reasons why Baidu managed to be successful (Baidu, 2006).

One of the main reasons why Baidu pursued BMIs was the changing consumers' behaviors, represented for example by the increased usage of smartphones. In order words, the opportunities for BMI were identified in the change of consumers' demand, which significantly stimulated a change in the value proposition.

4.2 Alibaba

4.2.1 Company overview

Alibaba Group Holding Limited is the leader in Chinese e-commerce market, with 58.2% of market share in China as of June 2018 (Blazyte, 2018). The company was founded in Hangzhou (China), where it is currently headquartered. Jack Ma was the founder, one of Chinese entrepreneurs that are holding the reins of Chinese Internet economy expansion. In his previous job as a teacher, Jack Ma had the occasion to experience the Internet during a trip to Seattle in 1995, which allowed him to realize the potential of the Web. When he returned from the US, he founded "China Pages", a web providing business information about Chinese major companies. Following this step, he gathered 18 friends into his apartment in Hangzhou which collectively built a website, Alibaba.com. The aim was to exploit the Internet to connect Chinese small manufacturers to do business. By seizing this opportunity, Ma and his colleagues raised US$ 5 millions from Goldman Sachs and US$ 20 millions from Japanese *Softbank* (Tse 2015, p. 36-37; D'Onfro, 2014). Despite his resignation as a CEO as well as a chairman, he will always inspire Alibaba's future strategy (Alizila, 2018a; Cadell, 2018).

Alibaba.com was originally a B2B company; however, it diversified its operations and it is now an ecosystem with three main businesses: *Alibaba.com* (B2B), *Taobao* (C2C) and *Tmall* (B2C). However, Alibaba has also some subsidiaries, set up to expand its service offering (Alibaba Group, 2015a; Blystone, 2018). These includes: *Alitrip*, an online travel booking platform; *AliExpress*, a global online marketplace; *1688.com*, a wholesaler marketplace in China; *Alibaba Cloud* (known

as *Aliyun*); *Alimama*, an online advertising platform; *Ant Financials*, for financial services; *Cainiao Network* for the logistics (Buddhadev, 2018; Alibaba Group, 2015a; Blystone, 2018). A snapshot of the company's ecosystem is given in the Appendix 5.

Alibaba has expanded globally to allow businesses outside China to reach Chinese consumers. In fact, its strategies have been centered on the mission to "Make it easy to do business everywhere" and grow the company for 102 years, in order to reign for the entire 21st century and still be surviving in the year 2101 (Alibaba Group, 2008). With the mission to favor an entrepreneurial environment for growing *entrepreneurs*, they also established the Hong Kong Entrepreneurs Fund in 2015 to create a regional and global vibrant environment for young talents (Alibaba Group, 2011; Chou et al., 2017).

Alibaba became public in September 2014 on the New York Stock Exchange, by raising US$ 25 billions, with the biggest IPO ever seen to that date (Alizila, 2018b; Tse, 2015, p. 33). The company registered 2018 revenues for US$ 39.9 millions (Alibaba Group 2018h).

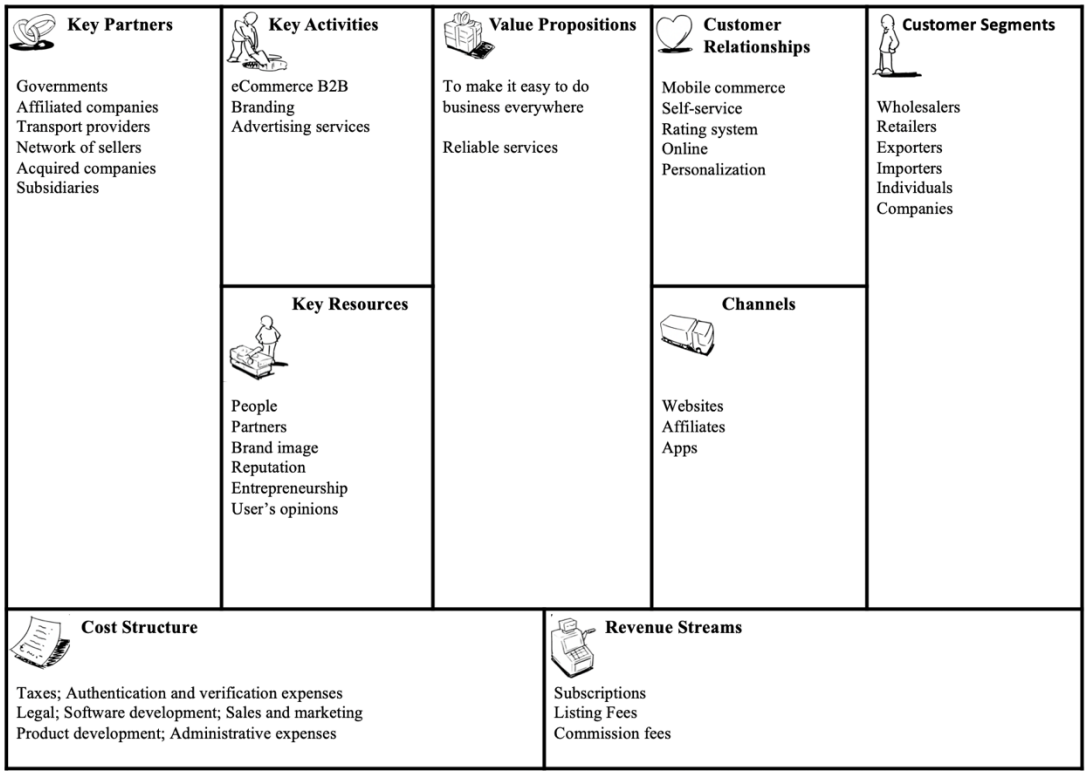
Alibaba is often compared to the Western e-commerce companies Amazon and eBay, which are also among their competitors (Buddhadev, 2018; Blystone, 2018). However, while Amazon and eBay are mostly active in the B2C commerce, Alibaba is active in three segments: B2B, B2C and C2C. Moreover, Alibaba is not a retailer like Amazon; in fact, it does not hold any inventory, but it simply connects buyers and sellers through its platforms. Another difference between them is that while Amazon does not share data with other retailers, Alibaba does it in order to allow companies to increase their sales through its online platforms (Laubscher, 2018; Riecke, 2015). This is due to the difference in how the two companies operate: Amazon is a reseller itself, while Alibaba acts only as a platform that connects buyers and sellers; therefore, the more data it shares with sellers, the more traffic it will see on its platforms.

Alibaba started to perceive the competition from Ebay in 2004, when it landed in China. From the beginning it was clear Ma's willingness to fight and win the Western company. In fact, as reported by Tse in his book "China's disruptors" (2015, p.24), Ma said "eBay may be a shark in the ocean, but I am a crocodile in the Yangtze river. If we fight in the ocean we lose, but if we fight in the river, we win". With this in mind, they launched Taobao, a C2C platform which, unlike eBay, offered its services for free to both buyers and sellers, pulling eBay out of the country (Tse, 2015, p.38; D'Onfro, 2014).

4.2.2 Defining the traditional Business Model

With the goal to serve China's small exporting companies' needs through e-commerce, Alibaba devoted itself to the development of different business segments. However, until 2009 Alibaba focused mainly on its core business, which is to connect buyers and sellers of goods.In the picture below the BM Canvas related to their original Business Model is presented.

Figure 13. *Alibaba's original BM Canvas*



4.2.3 Alibaba's Business Model Innovations

Table 5. *Alibaba's Business Model Innovations*

Business Model Innovation	Description	Year
VAS	Alibaba started to offer VAS around its core business (eCommerce). Those include: the possibility to bid for a priority placement on the eCommerce platform; virtual showrooms; the possibility to pay for being awarded recognition by Alibaba's website. By monetizing on these VAS, the further fragmented their sources of revenues (Alibaba Group, 2011; 2001). The VAS improved the company's value proposition; since they represent changes that	**Over the years**

	normally occur in a company's BM, it is defined as an Evolutionary BMI (Foss and Saebi, 2017b).	
C2C	The launch of Taobao (2003) marks Alibaba's expansion into C2C segment, beyond the original wholesale platform (B2B). Sellers could buy priority or more visibility on Taobao Marketplace, which increase revenue source for Alibaba. They also launched a global version, Taobao Global in 2014 (Alibaba Group website). This BMI is considered Evolutionary (Foss and Saebi, 2017b).	**2003**
Fintech	With Alipay (launched in 2004) as precursor, Ant Financials (owned by 33% by Alibaba) offers several services like loans, asset management, customers' credit scoring aimed at building a financial ecosystem. (Ant Financials Website). This is considered a Complex BMI (Foss and Saebi, 2017b).	**2004**
Online Marketing	Alimama is a marketing platform launched in 2007 by Alibaba Group. It represents a further value for sellers that can post advertising tailored for users. It represents a change in its BM since it is a further offering for people that can have more visibility (Alibaba Group Website; Blystone, 2018; Walraven, 2009). Alibaba offers P4P marketing services; placement services; sellers can bid for priority placements. Furthermore, it constitutes a further revenue stream for the company. This is an Evolutionary BMI (Foss and Saebi, 2017b).	**2007**
B2C	With the launch of the retail platform TMall in 2008 (originated as a spin-off from Taobao) Alibaba expanded into the B2C segment, by adding value to Chinese customers belonging to the middle class that wanted to purchase branded products. The platform includes both Chinese and International brands, like Nike and Apple (Buddhadev, 2018). This is considered an Evolutionary BMI (Foss and Saebi, 2017b).	**2003 →**
Travel industry	The company entered ecommerce by developing own platforms (the C2C Paipai.com; the B2B2C Buyqq.com) (Tencent, 2006c; 2012d). Afterwards, they started to seek for partners like JD.com. Their aim was to offer their users the possibility to enjoy an online shopping experience, and to further open up monetization opportunities for them. This is considered an Adaptive BMI (Foss and Saebi, 2017b). In fact, it was new to the firm, but known from the industry since Alibaba was the ecommerce market leader.	**2010**
One-stop-shop logistic services	Alibaba set up a logistics arm called *Cainiao Network.* It connects e-commerce companies with players along the value chain. It improves delivery efficiency by offering of one-stop-shop logistic services. This moderate BMI shows that Alibaba sought for providing more services around its core business (Alibaba website; Alibaba, 2015c). Therefore, it can be referred as an Evolutionary BMI (Foss and Saebi, 2017b).	**2013**
Entertainment	Alibaba aimed at offer fun and happiness to those people shop at their platform. Solutions include information and news, online video, music, games. This further offering is part of Alibaba's willingness to have its users not only to "shop at Alibaba" but also to "Live at Alibaba" (Brennan, 2017; Graziani, 2018). Adaptive BMI (Foss and Saebi, 2017b).	**2014**
Smart Industries	Alibaba started to evolve from eCommerce into O2O business with some investments and the launch of the "Five New" strategy in 2016. The company aimed to penetrate every industry with its online solutions and expertise (Alibaba Group, 2017). Given the relevant changes in BM, this BMI is considered a Complex BMI (Foss and Saebi, 2017b).	**2015 →**

Among the BMIs illustrated above, FinTech, Entertainment Smart Industries have been considered radical BMIs. In fact, they allowed Alibaba to build a new and diversified business model and occurred beyond the company's core business. Therefore, a closer examination is needed.

FinTech

The journey into the FinTech sector has started in 2004, when Alibaba Group released Alipay, an online payment platform to support transactions on Alibaba's e-commerce solutions. Alipay originated a radical BMI for the company, leading to the foundation of an entire new company in 2014 called *Ant Financials*, owned 33% by Alibaba (Zeng, 2018; Alibaba Group, 2011; Ant Financials Website). With this BMI, Alibaba wanted to offer a solution to the weaknesses of Chinese banking sector, which offered no guarantee to its customers and lacked an efficient credit system (Stratfor, 2018; Tse, 2015, p.39).For this reason, Alibaba aimed at turning "trust into wealth", by increasing its financial product offering especially to small and micro enterprises (Alibaba Group, 2014a). Through Ant Financials, people can pay taxis, telephone bills and utilities, hotel reservations (Ant Financials Website). Beyond this offer, Ant Financials creates new value for Alibaba Group through: credit scoring systems to rank individuals' trustworthiness (Zhima Credit); wealth management platforms (like Yu'e Bao); a private online bank (My Bank). All these new activities are backed by an advanced cloud technology, AI deployment and efficient big data technology; due to this reason, in fact, Ant Financials claims to be a tech company, rather than a financial company (Ant Financials Website). Alibaba's aim was to create a Financial ecosystem where there is open collaboration with partners (Alibaba Group, 2014a). Therefore, it can be argued that Alibaba innovated its business model by proposing new offerings and by capturing the new value through a new revenue stream coming from the financial sector. Furthermore, is can be considered a Complex BMI ((Foss and Saebi, 2017b) as it represented a big change to the company's BM; moreover, it constituted a new value for Chinese market.

Entertainment

Alibaba further innovated its BM through an expansion into the entertainment sector starting from 2014. In particular, the company renewed their vision, with the proposition to allow users not only to "shop at Alibaba", but also to "live at Alibaba" (Brennan, 2017). This expansion is not unnatural; in fact, Ma often claimed that Alibaba was the biggest entertainment company in the world. This was due the time spent by Chinese people on its platforms, whether they make a purchase or not (Najberg, 2016). In order to deliver this value, online platforms were established, with sponsoring through a cross-platform promotion. Precisely, they offer free tickets to new Taobao app installs on *Taopiaopiao*, a ticket booking platform; or they advertise products offered by Tmall on Youku so that users are more likely to buy them on TMall) (Graziani, 2018). Alibaba

started to create new value through novel activities: news and information (*UC Web,* acquired in 2014); music (*Alibaba Music*, launched in 2015); online movies (*Alibaba Pictures,* acquired in 2014); online ticket booking (*Damai* in 2017 and *Taopiaopiao*); video streaming (*Youku Tudou*, acquired in 2016); gaming (*Alibaba Gaming*).(Graziani, 2018; Alibaba Group, 2016). This BMI originated from Jack Ma's willingness to pursue the "Double H" strategy, with "Health and Happiness" as key points for the company's strategy. Therefore, Alibaba wanted to have their users to enjoy themselves, through music, movies, information, live events (Alibaba Group, 2018a). It also constitutes a way to increase its revenues, to include those coming from entertainment and digital media segment (5% of its revenues as of 4Q 2018 according to Statista). Having arrived roughly 10 years after Tencent in the online entertainment sector, it is clear that Alibaba was not a pioneer, but rather a follower. Therefore, by innovating its BM in a way that was new to the company, but not new to the industry, we can call this an Adaptive BMI (Foss and Saebi, 2017b).

Smart Industries

In 2016 Alibaba unveiled the "Five New" strategy, which represents the starting of its BMI into the smart industries. The company has shown the commitment to build the "New Retail", "New Finance", "New Manufacturing", "New Technology", "New Energy", in order to shape those industries in the new digital era). At the foundation of the "Five New" there are cloud, AI, IoT, big data, analytics and computing capabilities (Alibaba Group, 2017).

With the aim to connect online and offline environments, the company invested in food delivery companies like Ele.me (Alizila, 2018b). More recently, Alibaba targeted brick-and-mortar business segment, by investing in retailers like Sun Art retail (an operator of supermarkets), and Intime Retail (a department store chain) (Chen, 2017; Alibaba Group, 2014b; Weinswig, 2018). Moreover, as a prototype for the "New Retail" strategy, Alibaba launched its AI-powered Hema supermarket since 2016 (Alibaba Group, 2017; Walton, 2018). To briefly illustrate the magnitude of *Hema supermarket*, one should think about it as a retail shop, a distribution center and a restaurant. People can scan the products and have them delivered at home through conveyor belts that aggregate the food to be shipped. People can even shop and decide to eat at the restaurant, by choosing from the store what they would like to eat, and by sending it through the app to the supermarket's restaurant. The food is then delivered to the customer's table through the Robot.He restaurant which arrived right in front of the table ready to be consumed (Bhardwaj, 2018, Saiidi, 2018). As already mentioned, Alibaba is also invested in the travel industry. Alibaba set up JV and

then invested in Shiji Group to design the hotel of the future, called FlyZoo in Hangzhou. In this hotel, there is no need for customers to queue for the check-in/check-out process, they have their intelligent rooms where lights, curtains, TV adjust according to their voice command. Orders are delivered to the rooms by AI-powered robots, and bartenders as well are robots (Brennan, 2019). This is a further example of how online connects to offline. Furthermore, in 2017 Alibaba started to collaborate with car makers to develop intelligent cars, and to deliver intelligent solutions to solve city traffic problems (like the Malaysia City brain initiative in 2018) (Chou, 2017; AliCloud, 2018; Alibaba Group, 2018b; Chen et al. 2018). In relation to this, the City Brain initiative was launched in Malaysia in 2018 (Alibaba Group, 2018b; Chen et al. 2018). It uses cloud technology in combination with AI algorithms to detect and gather urban data and study instant solutions.

Alibaba innovated the value for the customers by connecting them to offline environments. The value creation was innovated as well, by targeting more offline environments. In this way, Alibaba's customers can also perceive the company's presence in offline environments, and not only online. The value capture innovated as well, since Alibaba would have costs related to doing business offline, like the cost of inventory. Revenues from retail now come also from offline partnerships with retailers, beyond online retailers like Taobao and TMall.

This is considered a Complex BMI (Foss and Saebi, 2017b) because it represented a disruptive change for the company's BM and it was new to the Chinese market.

Table 6. *Summary of Alibaba's radical BMIs*

	FinTech	**Entertainment**	**Smart Industries**
Value Proposition	Turn trust into wealth. Bring to the world equal opportunities.	To allow those who have fun shopping at Alibaba to truly live at Alibaba. Health and happiness	New value proposition: connect online users with offline environments. Transform industries in this new digital era.
Value delivery	Different financial needs satisfied. Online platforms.	Diversification of offering. Online platforms. Cross-promotion between apps.	Digitalization of retail. Combination of online and offline spaces. Strong use of cloud, AI as enabler of the BMI.
Value creation	Technology. Online payment services, loans, insurances. Partnerships.	News and information, music, movies, live events, gaming. Acquisitions.	New value created both for customers and offline spaces. New partnerships with offline retailers. New activities in offline spaces.

Value capture	Revenues from financial services and provision of cloud technologies to financial partners.	Revenues from digital and media entertainment 5% of Alibaba's revenues (Statista, 2018).	New costs related to, for example, inventory. Increase revenues coming from offline retail (beyond online retail with Taobao and TMall).

4.2.4 Summary

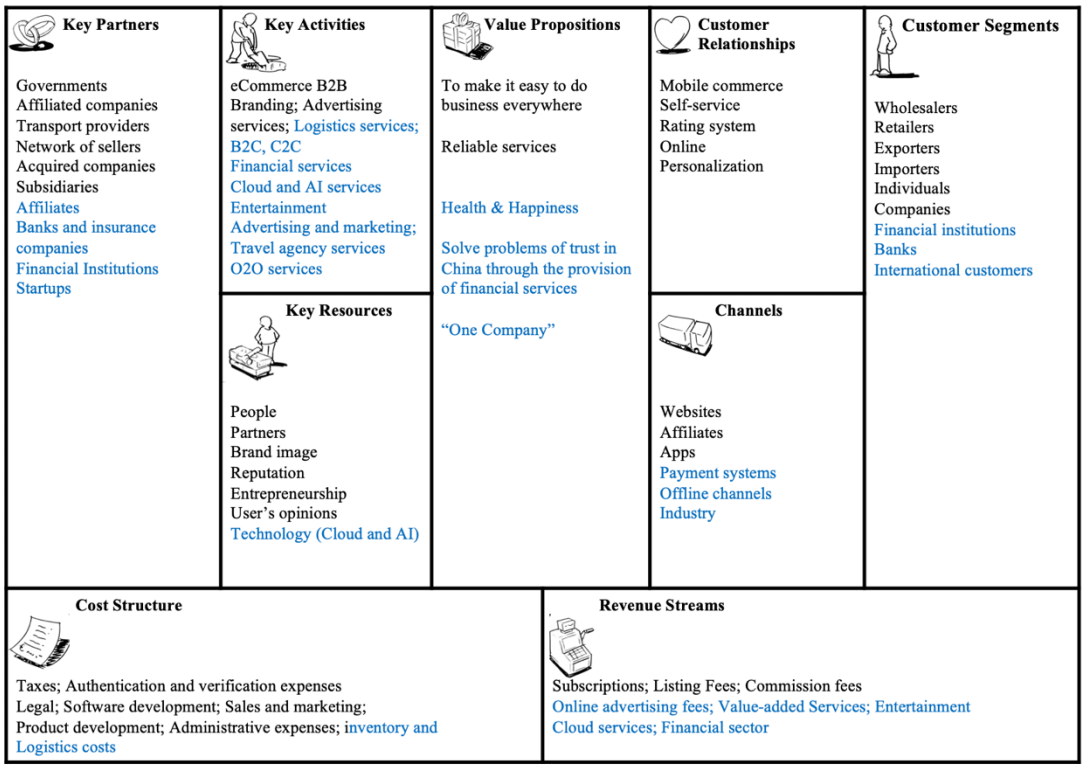
Through a commitment to Business Model Innovation, Alibaba pushed itself beyond its e-commerce core segment, to embrace the trend of *onlinisation* and apply it to marketing, logistics, retail, travel, entertainment. The company innovated its business model to include FinTech sector, logistics services (Cainiao) and cloud technologies (AliCloud), and now they can boast a solid service ecosystem that supports it core commerce business. Some BMIs cannot be considered disruptive for the industries, like cloud, O2O penetration. However, Alibaba's still disrupted the industry in terms of the speed through which they delivered the BMIs. Moreover, it is peculiar how the solutions were implemented: in order not to harm their original business, the BMIs were run as separate units. In case of successful outcome, they were transformed into affiliates (like *Taobao Travel* that became *Alitrip* in 2014 to include more services and deliver its own innovative value propositions). Alibaba's BMI process was influenced by its customer-centric approach and what has been called customer-to-business (C2B) business innovation, where the customer is the ruler of each new initiative (Alizila, 2017b).

Alibaba BMI is stimulated by the evolution of their mission over the years. In particular, in the investor day held in 2018, they summarized what they want to achieve and how. They want their consumers to evolve from "shopping at Alibaba" through Taobao, TMall and other solutions, to "Live at Alibaba", through enjoying entertainment, food delivery at home and having financial services on their mobile phones. They want their enterprises partners to shift from "Meeting at Alibaba" through the B2B platform Alibaba.com, to "Work at Alibaba", through a more active use of Cloud solutions, of credit systems that imply the collaboration between the two sides (Alibaba Group, 2018c).

4.2.5 Defining the current BM

After having considered Alibaba's BMIs, we present below the current BM, summarized using the BM Canvas.

Figure 14. *Alibaba's current BM Canvas*



4.2.6 The interaction between Innovation Ecosystem and Business Model Innovation

In order to ideate and implement the changes related to the BMI, Alibaba resorted to the contribution of several actors of its IE. Alibaba IE is based on its platform, through whom the companies can communicate and deliver their own products. Since Alibaba promotes also cross-platform synergies, and the company interacts with other actors through these platforms, its ecosystem can be classified as *Platform-based*.

Companies

Another actor is represented by companies, businesses, banks that, all together, influenced different BMIs. To give some example: UC Web, HiChina and OneTouch (providing web services and import-export service for SMes respectively); Intime Retail and Suning (retail chains for the O2O BMI related to the "New Retail" strategy); banks like ICBC and CCB, to offer business loans and financial consulting services (FinTech related BMI) (Wang, 2016; Alibaba Group, 2011; Chen, 2017; Stratfor, 2018; Alibaba Group, 2008). Furthermore, Alibaba recently set up a joint

venture with its competitor Tencent aimed at making Didi Chuxing (a taxi hailing company where the two companies already invested) the leader in China (Sun and Horwitz, 2019).
All these diversified businesses contributed to Alibaba's BMI in terms of Value creation, Value proposition, value capture (through O2O solutions developed with offline retailers, Alipay is used as payment method to gain commissions on transactions) and Value delivery (partnership with companies that offered VAS for instance).

Startups

A relevant actor is represented by the startups environment, which received strong investments by Alibaba; as a matter of fact, the company is positioned among the main sources of venture capital, together with Tencent (Stratfor, 2018). To give some concrete example, we can cite some Alibaba's investments in startups: Ele.me (food delivery, US$ 1 billion) (Trefis Team, 2015); SenseTime (facial recognition technology, US$ 600 million) (Jiang and Zhu, 2018; Si, 2018); Megvii (AI technology, roughly US$ 330 million) (Wu and Zhu, 2018); Visualead (QR code solutions, US$ 5 million) (Alibaba Group, 2015b). In particular, these investments show that Alibaba is committed to become a leader in cloud and AI technology, and explore, through the knowledge contribution of Visualead, solutions related to the AR and VR fields, which might become fundamental for e-commerce. Alibaba and SenseTime in particular have set up an AI research lab in collaboration with the HK Science and Technology Park (Si, 2018), which is relevant for the BMI process. This first actor, therefore, contributes to value creation in Alibaba's BMI.

Academia

Another important actor of the IE is represented by universities and Academia. Alibaba set up the DAMO Academy and the Ali-Institute, which are committed to the development of talents and research. The DAMO's academy mission is, in fact, to explore the "unknown" (Alibaba Group, 2018f; 2011). Alibaba has recently planned to invest US$ 15 billion in the next three years to set up R&D labs worldwide. Furthermore, the company set up a collaboration with Tsinghua University and a joint research institute with the NTU of Singapore to develop unique AI solutions to support the industry 4.0 and to develop IoT (Chou, 2018a; Chou, 2018b; Alibaba Group, 2018g).

They also have *Aliresearch*, working with universities on innovation (Interviewee 4). It can be argued that those actors contribute to Alibaba's new value creation.

Government

Chinese government supported the company, especially in the last years in relation to development in the AI fields. In fact, with the aim to become a leader in AI and a commitment to invest US$ 1 trillion in AI industry by 2030, Chinese government recruited also Alibaba in its "National Team", together with Baidu, Tencent and *iFlytek*. In particular, Alibaba was recruited to develop AI solutions called "city brains" to improve urban life (Marr, 2018b; Jing and Dai, 2017; Louise, 2017). The *ET City Brain* first launched in Hangzhou in 2018 and then in Malaysia are examples (Alibaba Group, 2018b; Chen et al. 2018; Hsu, 2018). In order to develop city traffic management solutions, Aibaba works with different governments (Interviewee). It uses cloud technology in combination with AI algorithms to detect and gather urban data and study instant solutions. Therefore, the government stimulated Alibaba to innovate its value proposition and contributed to the value creation.

Customers

Chinese consumers are fundamental in Alibaba's BMI related to a change in the value proposition. They are contributor in Alibaba's strategy to shift from "shop at Alibaba" to "live at Alibaba", and for companies to shift from "Meet at Alibaba" to "Work at Alibaba" (Brennan, 2017). The users also contributed in terms of the creation of value, but the customers were fundamental, since Alibaba has always operated with a customer-centric logic.
solutions. Therefore, the government stimulated Alibaba to innovate its value proposition and contributed to the value creation.

4.3 Tencent

4.3.1 Company Overview

Tencent Holding Limited is a Chinese conglomerate listed on the Hong Kong Stock Exchange, co-founded by the current CEO Ma Huateng and his four friends in 1998. The company is headquartered in Shenzhen. Originally born as a provider of Instant Messaging (IM) services with its first IM product called *OICQ*, it became profitable only in 2001 (Louise, 2018). The company achieved a respectful position in seven business segments: IM services; online media; wireless internet value-added services (VAS); online gaming; internet VAS; online advertising services and e-commerce (Louise, 2018). Tencent has recently started to build its presence into Chinese healthcare system and implementing strategies to increase its presence in the Online-to-Offline (O2O) segment through, for instance, investments in the retail sector (Dwarakanath, 2018). A snapshop of Tencent business segments is offered in the Appendix 6.

Among Tencent's huge product portfolio, two platforms are mostly known *QQ* and *Weixin* (internationally known as *Wechat*). Tencent's mascot, a small penguin wearing a scarf, came to symbolize the China's *Online Life* (Tencent, 2007a).

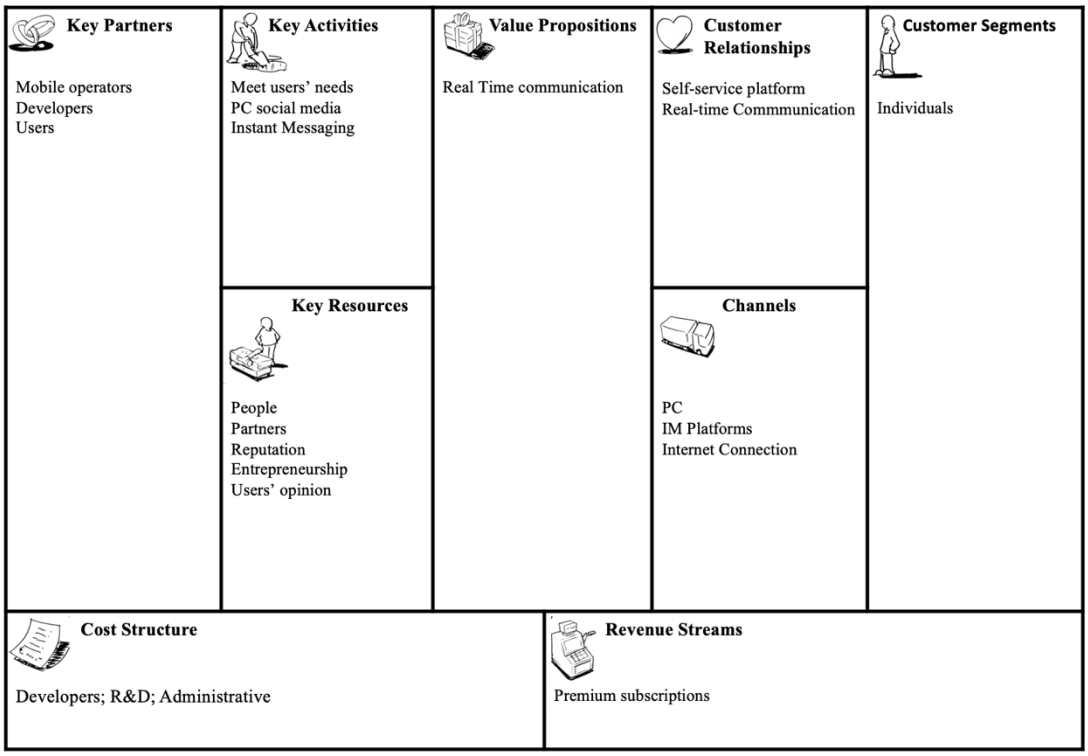
Tencent's CEO Ma Huateng, also known as "Pony Ma", is among the Chinese entrepreneurs that have created powerful companies, able to achieve rapid growth in few years. In fact, in roughly five years, Tencent's revenues moved from US$ 9.9 millions in 2018 to US$ 45.6 million in 2017 (Tencent, 2014a; Tencent, 2019). Moreover, in the 1Q of 2018, it almost achieved the Western giant Facebook in revenues, with US$ 11.7 billions versus US$ billions 12.0 of Facebook (Richter, 2018). The company was able to create a dynamic ecosystem that evolved over the years to include more products and satisfy further users' needs. The picture below gives an overview of Tencent's ecosystem. Tencent is often compared to Facebook and seen as its Chinese counterpart. They are almost equal in terms of amount of revenues, while Tencent still lags behind Facebook in terms of Monthly Active Users (MAU). According to Statista, in the 1Q of 2018, Facebook had 2.196 millions of MAU, while Wechat and QQ combined achieved 1.846 millions (Richter, 2018). A difference between the two companies lies in their peculiar BMI. In particular, Tencent has arrived at a point where Facebook did not. It managed to integrate the same services offered by Facebook in a multi-sided platform, exploiting the QQ brand and Wechat, and monetizing their users base. By integrating and merging three market segments, Tencent was able to neutralize Facebook's first mover advantage (Hylden, 2016). Another difference between Tencent and Facebook lies in the structure of their business models: while Facebook derives its revenues mainly from

advertising, Tencent's revenues mainly come from the gaming segment and value-added services (Denlinger, 2018). Some scholars found Tencent's innovative BMI roots in a process of copying Facebook's offer and products. As mentioned by Mr. Yu (2016), Tencent shifted their position from being a copycat to a copy victim. In fact, thanks to the Great Firewall, Tencent looked at Facebook's Whatsapp to deliver its Wechat. However, they are now becoming "copy victims"; in fact, by delivering an "Instant Game" platform directly accessible through Messenger, without the need for users to download a further app, they recalled Wechat Mini-Programs (Yu, 2016). Those represent lightweight apps that don't have to be installed and can range from ride-hailing and food delivery to livestreaming and shopping (Murgia, 2017).

4.3.2 Defining the traditional Business Model

To show Tencent's BMI efficiently, a first representation of its original business model is offered using the BM Canvas. In its first phase, Tencent BM was centered on providing IM solutions, like QQ platform.

Figure 15. *Tencent's original BM Canvas*



4.3.3 Tencent's business model innovations

Table 7. *Tencent's Business Model Innovations*

Business Model Innovation	Description	Year
VAS-based BM	After the launch of QQ, Tencent added more VAS (value-added services) to its social networks, like email, virtual goods, small cosmetic features, QQ Pet, QQ Show; and online games (Tencent, 2006c). VAS allowed the company to gain higher revenues through the Freemium model: the main services is free, and then users can do micro-transactions to buy small personalization features. Utilities have been added, such as anti-viruses softwares and location-based services. This represents a moderate BMI according to intensity. Since VAS and utilities have been added during the years, it can be called an Evolutionary BMI (Foss and Saebi, 2017b).	**2000 →**
Advertising-based BM	Soon after the launch of QQ, Tencent enlarged its sources of revenues through online advertising services. They monetized on advertisers that posted first through QQ and after through Wechat. Now online media and social advertising in one of their main revenue sources (Tencent, 2013b; Tencent, 2018h). This represent an Evolutionary BMI (Foss and Saebi, 2017b).	**2000 →**
From PC-based to mobile	The launch of Mobile QQ in partnership with Telecom operators represents a shift in Tencent's BM towards a more mobile-oriented business model. It constituted an increasing value for customers, since they could enjoy and keep in contact with friends even when traveling (Tencent, 2000a). This solution improved value proposition and customer relationships because it constituted a mobile IM solution. Therefore, it can be defined as a Focused BMI (Foss and Saebi, 2017b).	**2000**
New customer segment	Tencent did a BMI by targeting the enterprise market with the launch of *RTX* product to allow real-time communication within companies. Tencent included a new customer segment in their BM by producing a specific software for enterprises. This software was breakthrough in the market (Tencent, 2003). This can be considered a Focused BMI (Foss and Saebi, 2017b).	**2003**
Entertainment	Tencent transformed over the years its core business by entering into the entertainment segment. Among the various entertainment opportunities (video, music), they saw a big opportunity in Chinese gaming market (Interviewee 2). The company innovated the value for their customers and added a revenue stream by carrying out new activities, like game development (Tencent, 2004; 2016a). This BMI can be considered as Evolutionary (Foss and Saebi, 2017b).	**2003 →**
eCommerce	The company entered ecommerce by developing own platforms (the C2C Paipai.com; the B2B2C Buyqq.com) (Tencent, 2006c; 2012d). Afterwards, they started to seek for partners like JD.com. Their aim was to offer their users the possibility to enjoy an online shopping experience, and to further open up monetization opportunities for them. This is considered an Adaptive BMI (Foss and Saebi, 2017b). In fact, it was new to the firm, but known from the industry since Alibaba was the ecommerce market leader.	**2004**
FinTech	With the release of online payments solutions and other technology-based financial services, Tencent entered in the FinTech sector. Apart from being a new revenue stream based on transactions, it represented a further value for its users (Tencent, 2006c; Tencent website). However, this BMI was new to	**2006**

	the company but not new to the industry. Therefore, it represents an Adaptive BMI, done by compete with a rival (Foss and Saebi, 2017b).	
Smart industries	Deep investments have been made into AI and Machine Learning (ML) in order to "Make AI Everywhere" and create smart industries. Its priority remains healthcare, but it is worth mentioning that AI solutions in other industries have been developed as well (Tencent, 2018a; 2018h; 2018b). This BMI reflects their "Connection Strategy" unveiled in 2015, which further developed in 2018 with the company entering into a new era, called *Industrial Internet*. Since it was not new to the industry, it can be considered an Adaptive BMI (Foss and Saebi, 2017b).	**2015 →**

Entertainment has become the main business segment for Tencent. For this reason, it is considered radical for the company. FinTech and eCommerce solutions are considered both far beyond Tencent's BM; for this reason, they are worth being analyzed in detail. The same stands for the BMI based on smart industries. This represents a radical BMI because it implies Tencent strong commitment to shift its BM towards the inclusion of more cloud and AI solutions for industries to help them move online and attract easily online customers.

Entertainment

Among the offerings of platforms for information, animation, music and video, Tencent has started to offer a wide range of games since 2003. In a first phase, they mainly made use of external partners, both from China and from the US and they bought licenses whenever they saw a great content (Interviewee 3); consequently, they started to operate new key activities, like in-house game development. With the mission to create "fun and happiness", Tencent Games was established (Tencent, 2006c; 2004; 2015b). The company radically changed its BM foundation: from a provider of IM services, to a main supplier of solutions for fun and entertainment. Now Tencent's market share in Chinese online gaming industry is 51.1%, followed by *NetEase Games* with 14.8% (Blazyte, 2018). Finally, in 2012 restructuring of Tencent's business groups, the Interactive Entertainment Group (IEG) was formed, with the aim to expand global online gaming market (Tencent, 2012b). Moreover, a significant share of the total revenues is gained from the entertainment segment. This BMI allowed Tencent to upgraded its value proposition beyond IM services (Tencent, 2015b). The company included new partners in its business model. Tencent implemented this BMI by starting to perform new activities in a new market segment. As mentioned by Amit and Zott (2012), in fact, BMI can also occur by adding new activities to an existing business model. The company acted as a leader to enter this market, showing a proactive

attitude towards innovating its business model. This change is considered an Evolutionary BMI (Foss and Saebi, 2017b), since it constituted an opportunity for Tencent to further monetize on their user base, as the company saw a great opportunity in the market.

FinTech

Tencent started by launching the third-party payment system Tenpay in 2006c, followed by Wechat Pay in 2013 and QQ Wallet in 2014. The integration of online payment services into QQ and Wechat platforms offered an additional value to the users. The company therefore was able to create a mobile-ecosystem around their users (Tencent, 2015c). In the most recent years, further services were included into their multi-sided platform through Wechat Mini-programs (Tencent, 2018h). Insurance services, wealth management and bank services are some examples (Tencent, 2018c). An example of a Mini-program is *WeSure*, a platform that offers several customized insurance services to users aimed at broadening protection for Chinese people by rendering insurance services affordable (Sheehan, 2018). Other financial services offered include: online loans; online deposits; platform for online savings (Han, 2018). It clear, therefore, that through this BMI Tencent started its own credit system.

The company innovated the value for its customers, by offering bank-related services on mobile phones, therefore presenting themselves as an online bank. To create this value, they mainly used Wechat as a channel, together with the expertise of their partners (banks and insurance companies). By offering diversified financial services the company introduced a new source of revenue in its BM. Since Tencent penetrated FinTech market slightly after Alibaba, we can argue that the BMI was new to the company, while not new to the industry. Therefore, it represents an Adaptive BMI (Foss and Saebi, 2017b).

eCommerce

The third radical BMI is represented by Tencent's expansion into the eCommerce segment (Tencent, 2013a). Tencent launched its own platforms in 2005, like the C2C platform Paipai.com and the B2C buy.qq.com, to exploit its QQ user base and community (Tencent, 2006c; 2008). Furthermore, since the launch of Wechat in 2011, the company started to use it as a channel to offer online shopping experiences. In fact, the feature called "Moments" allows companies to advertise their products online which can be purchased by the customers and paid through *Wechat Pay*. After experiencing some difficulties in challenging the leader in eCommerce Alibaba, Tencent partnered with JD.com, second eCommerce player in China. This partnership

saw Tencent transferring its ecommerce platform to JD.com, and JD.com benefiting from Tencent's large mobile user base (Tencent,2014b; Carsten, 2014). Tencent's development into eCommerce is also witnessed by a change in operating model. In fact, in the r2012 restructuring, Tencent E-commerce holding company was created (Tencent, 2012b).
With this radical BMI, Tencent wanted to offer its users the chance to enjoy an online shopping experience. To allow this, Tencent first set up its own platforms, and afterwards it started to include new partners within its value chain. Value capture included new revenue streams, in fact Tencent's aim was to open up new monetization opportunities to exploit its enormous user base. Since the eCommerce market was already dominated by the giant Alibaba (Greeven and Wei Wei, 2017b), this can be referred to as an Adaptive BMI (Foss and Saebi, 2017b).

Smart industries

As mentioned by Pony Ma (Chairman and CEO), a shift towards Industrial Internet is happening. "*If the development of internet is said to have centered on consumers over the past 20 years, it will probably focus on business and industry over the next 20 years,*" said Tong, tencent's CSIG President (Tencent, 2018g; Jiang, 2018). Internet applications applied to industries are the foundations of "smart industries". The importance of this BMI is witnessed by Tencent's operational upgrade announced in 2018. The Cloud and Smart Industries Group (CSIG) was established to promote cloud and AI solutions for healthcare, transportation, education, retailers (Tencent, 2018e). Consumers will be the starting point to create C2B products and solutions for industries. Tencent will utilize its expertise in audio, messaging, video and gaming technology as well as users' insights. Furthermore, the company will use the latest technologies to help businesses reduce costs and increase efficiency (Tencent, 2018g). This BMI was initiated before, when Tencent already started to offer its users the chance to book doctor appointments and pay visits online through Wechat (Shih, 2016; Lew, 2018). Creating intelligent digital healthcare solutions is the company's priority, also backed by the government (Jing and Dai, 2017).
However, Tencent also aims at creating smart environments for retailers through penetration in O2O segment, to connect online users and offline stores (Tencent, 2006c; 2016a; 2015a). In relation to this, they unveiled the "Smart Retail" strategy (Tencent, 2018d; 2018h), which includes solutions that allow customers to interact with offline shops by utilizing the online Wechat app. In Walmart stores, consumers can scan and pay with the mobile phones, avoiding the queue at the cashier (Li, 2018). Furthermore, Tencent created "Online Social Stores" where users can express

themselves and see content posted by their friends through their Moments feed. To create smart retail solutions Tencent started to partner with retailers (Wanda, JD.com, Heilan Home, Yonghui Superstores, Carrefour) (Li J, 2018; Tencent,2014b; Zhu, 2018; Woodhouse, 2017; Kwan, 2018). The company is also contributing to shape the smart transportation industry. The first solutions implemented related to scanning a QR code to access ticket payments for the metro, in order to avoid queues. The company is also making research to develop AI solutions to manage traffic congestion in big cities (Feifei, 2018). The company digitalized industries to better connect with users online. Therefore, industries represented a new customer segments for the company. Furthermore, it required strong investments on AI and cloud as channels to deliver their solutions. That is also part of their slogans "Make AI everywhere", or "AI in all", (Marr, 2018a) which shows that they tapped more deeply into AI business segment. For the magnitude of the change, this could be considered a complex BMI. However, smart industries have already been recognized in the industry, since Alibaba already entered the Industrial Internet Era with different solutions. For this reason, it is more appropriate to consider it as an Adaptive BMI (Foss and Saebi, 2017b).

Table 8. *Summary of Tencent's radical BMIs*

	Entertainment	**FinTech**	**eCommerce**	**Smart Industries**
Value Proposition	New value: introduction of entertainment business segment	New value: pay online without the need to have your wallet. Financial services offered online on your mobile.	New value: create an online shopping experience.	AI everywhere Smart industries New value for hospitals and patients. New value for retailers and online users
Value Delivery	The new offer represents a new way to retain customers.	Strengthening of customer relationships through one-stop financial solutions	It did not change significantly	General industries (transportation, healthcare, retail) as new customers.
Value Creation	New activities: in-house development of games. New partnerships also overseas.	New partnerships New resources: Wechat Mini-programs; Cloud technology	New partnerships	New revenue source from cloud and AI technologies.

Value Capture	New revenue sources: games, music, online videos.	New revenue source coming from Financial services and online transactions.	It was an expansion of revenue streams.	Expect large revenues in the future

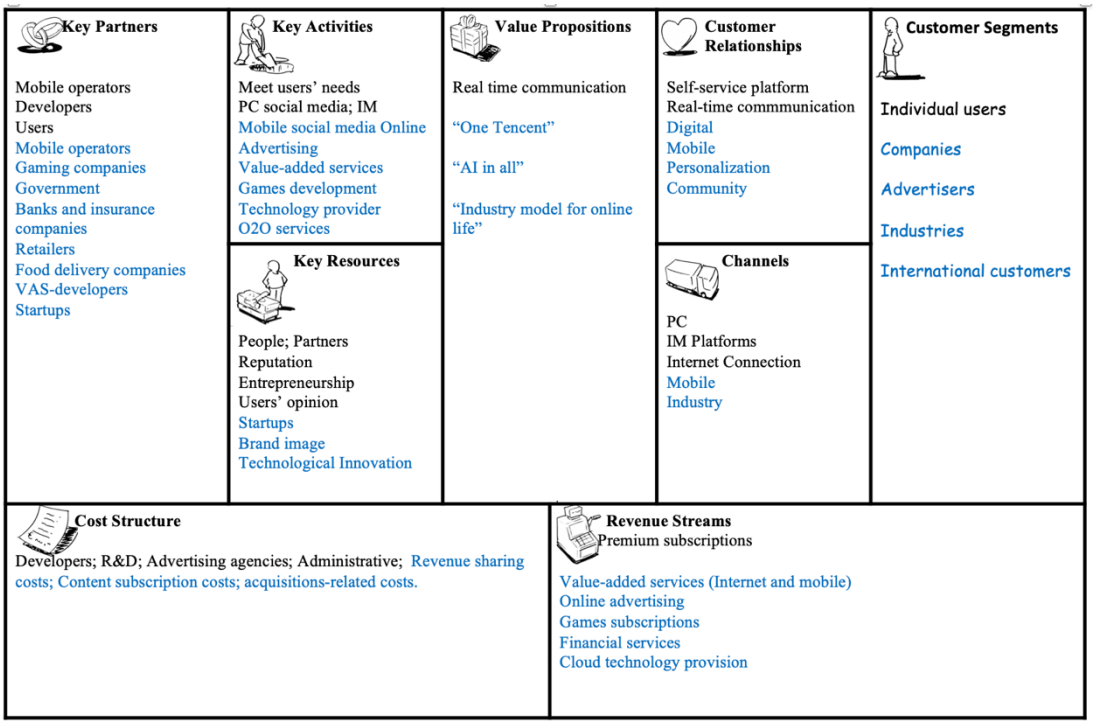
4.3.4 Summary

Through its BMIs, Tencent evolved from a simple provider of IM solutions into an Internet provider of "lifestyle" services, to fulfill its vision to create the "Industry model for online life" (Tencent, 2006a). The strategic moves pursued by the company and its visions have always accompanied their mission: to the "Online Life" in 2007 under the principle of "One Tencent" (Tencent, 2007b; 2012c). With Connection strategy from 2015 (Tencent, 2016c), Tencent took actions towards the development of an "Internet Plus Ecosystem" (Tencent, 2016b). Tencent is now operating in diversified business segments. To achieve this position, it pursued both moderate and radical BMIs, all fundamental to shape the company's success. The moderate BMIs happened around its core business, like value-added services and utilities, in order to monetize its large user base and exploit its brand identity. They innovated their BM also by building an ecosystem around Wechat and QQ community and platforms.
The radical BMIs transformed its business to become a major entertainment and gaming company. Furthermore, it entered the segments of e-commerce, O2O, FinTech. With significant investments in the AI and cloud technology, Tencent explored different solutions, especially in the healthcare sector, where it is the leader in AI medical tools. The company are investing to develop AI in other fields, like connected cars (Tencent, 2018f). All these BMIs created a disruptive change in Tencent's BM, and all of them are part of the broader "Connection Strategy" pursued since 2015.

4.3.5 Defining the current BM

By implementing moderate and radical BMIs, Tencent changed its business model. It penetrated into new business segments, it introduced new activities and delivered a novel value to its customers. The picture below shows current Tencent's business model, by underlying the changes in relation to the original one, illustrated in section 4.3.2.

Figure 16. *Tencent's current BM Canvas*



4.3.6 The interaction between Innovation Ecosystem and Business Model Innovation

Since 2011, with the promotion of the *Open Platform Strategy*, Tencent started to involve a wide range of external developers within its business operations (Tencent, 2012d). In particular, the milestone of their *Open Innovation Ecosystem* is represented by their several platforms (like *Tencent Westart*) where developers can connect with Tencent's users and deliver apps targeted on their needs. As mentioned in the *Theoretical Background*, *Open Innovation* is a strategy that allows companies to access external sources of knowledge to achieve a superior innovation (Chesbrough, 2017). Tencent's expansion of its business segments to realize BMI would not have been possible without the collaboration of different partners, like industry, government, users, academia research institutes startups. In fact, this is summarized by Tencent's CEO Ma Huateng words: "*A healthy ecosystem of the Internet industry hinges on the joint efforts of all the participants along the value chain of the industry. Winning through partnerships represents one of our key development strategies going forward*" (Tencent, 2011). In order to better shed light on the contribution of each actor to Tencent's BMIs, they are analyzed separately.

Companies

Tencent relied on partnerships with other companies in order to access the resources needed to deliver new products or to innovate its value delivery. Below some examples are offered.
To implement the FinTech radical BMI, collaborations with banks (ICBC, Hang Seng Bank, Bank of China) and insurance companies (like *Pacific Insurance, PICC, Ping An, Taikang)* was initiated. For example, in 2018 *Hang Seng Bank* and Tencent combined their strengths to set up a FinTech alliance aimed at exploit AI and cloud to co-create a remote account opening system to open bank accounts online through Wechat Mini-programs (Hang Seng Bank, 2018). A similar collaboration was established in 2018 with *Bank of China* to achieve jointly result in AI, big data and cloud computing (Zhang, 2018). For the BMIs related to O2O segment and entertainment, Tencent collaborated with gaming companies, and retail chains Wanda (Dwarakanath,2018), Walmart (Reuters, 2018), and food delivery companies (like *Meituan Dianping*). The aim was to access expertise as well as co-create value for the customers (Perez, 2015).
To conclude, this actor contributed in terms of creating new value (through new partnerships); new value proposition (Tencent was stimulated sometimes by the competition, in case for example of e-commerce and O2O); new value delivery (with the partners' resources Tencent could have access to new customers); new value capture (new revenue streams).

Startups

With its investments in startups, Tencent is among the major source of venture capital in China. In fact, Tencent Westart, first opened in Mainland China in 2013, mainly serves as an incubator to contribute to the startups ecosystem. Some of the investments include: Nubank (Fintech); Grail, Karius, CliniCloud, Circle Medical (healthcare sector) (Cao, 2018; Farr, 2017).
It can be argued that startups contributed to Tencent's innovation in how the company creates value for its customers. In fact, as they do with established companies, whenever they want to satisfy a new need, but they don't have the resources, they require external partners' help (Interviewee 3).

Academia

Apart from *Tencent Research Institute* inaugurated in 2007 (Tencent, 2007c), the company set up collaboration with other universities and research labs to create new value. For example, the

partnership established with the Tsinghua University was set up to collectively develop innovations in the AI field, which has been significant to digitalize the healthcare sector. Back in 2014, a collaboration with ROSE Lab, belonging on the Nanyang Technological University of Singapore, was set to work on mobile visual research, face recognition and cloud efficiency (Shi, 2018; Westart website). The collaborations with this actor of the IE are set up mainly to discover new technological solutions to implement BMIs. Therefore, this actor influences innovation in value delivery and value capture.

Government

The Chinese government has been a powerful actor with regards to Tencent BMIs. For instance, Tencent's entering in the healthcare sector through AI deployment was backed by the government who, in 2018, named Tencent among its "AI National Team" as the pioneer of medical diagnosis (Jing and Dai, 2017). The government further contributed when Tencent entered the FinTech sector, since for years it left the online payment market unregulated (Chorzempa, 2018). Therefore, the lack of an efficient credit system, stimulated Tencent to offer this further value to its users. It can be argued, therefore, that the government contributed mainly to value proposition innovation, by stimulating the company to enter into new fields.

Customers

Users are important, since they shape the company's next strategic move. With their changing needs (entertainment, mobile financial services, mobile personalization solutions) they stimulated the company to find new ways to create value. The company, in fact, has among its priorities to satisfy emerging needs, either with its resources or using external partners' expertise (Interviewee, 1; Interviewee 2). Therefore, the main contribution of users and customers in Tencent's BMI is to stimulate the innovation of the value proposition.

4.4 Xiaomi

4.4.1 Company overview

Xiaomi Corporation is a Chinese electronics company, which is headquartered in Beijing. Among the four case companies this is the newest player on the market. The company was incorporated in the Cayman Islands in 2010 by Lei Jun, a serial entrepreneur. He thought that high-quality technology should not be excessively expensive, instead it should be accessible for everyone. Nearly a year ago, in July 2018, Xiaomi was listed on *The Stock Exchange of Hong Kong Limited*. In 2010, the company launched the android-based firmware MIUI and a year later the first smartphone was announced and shipped with Xiaomi's MIUI firmware (Xiaomi website). Xiaomi is sometimes referred to as the "Apple of China", since both companies are significantly innovative (Singh, 2017). Xiaomi's first smartphone was sold for a price of US$ 324, which is really affordable compared to with for instance iPhone 4 which was sold for a minimum of US$ 699 (Kan, 2014). The phones could be sold to an affordable price due to Xiaomi's strategy focused on thin margins, as the company did not spend money on traditional marketing nor had any offline stores. Moreover, Xiaomi original strategy followed a dual BM of selling hardware products and online services (Kline, 2017).

The company reached a milestone of US$ 15 billions in revenues which indicates a rapid growth; in comparison, for Apple it took 20 years, for Alibaba 17 years and for Tencent 17 years. Three reasons explain the success: improved turnover capabilities; technology innovations; quality-focused nature of the company (Xiaomi team, 2018a).

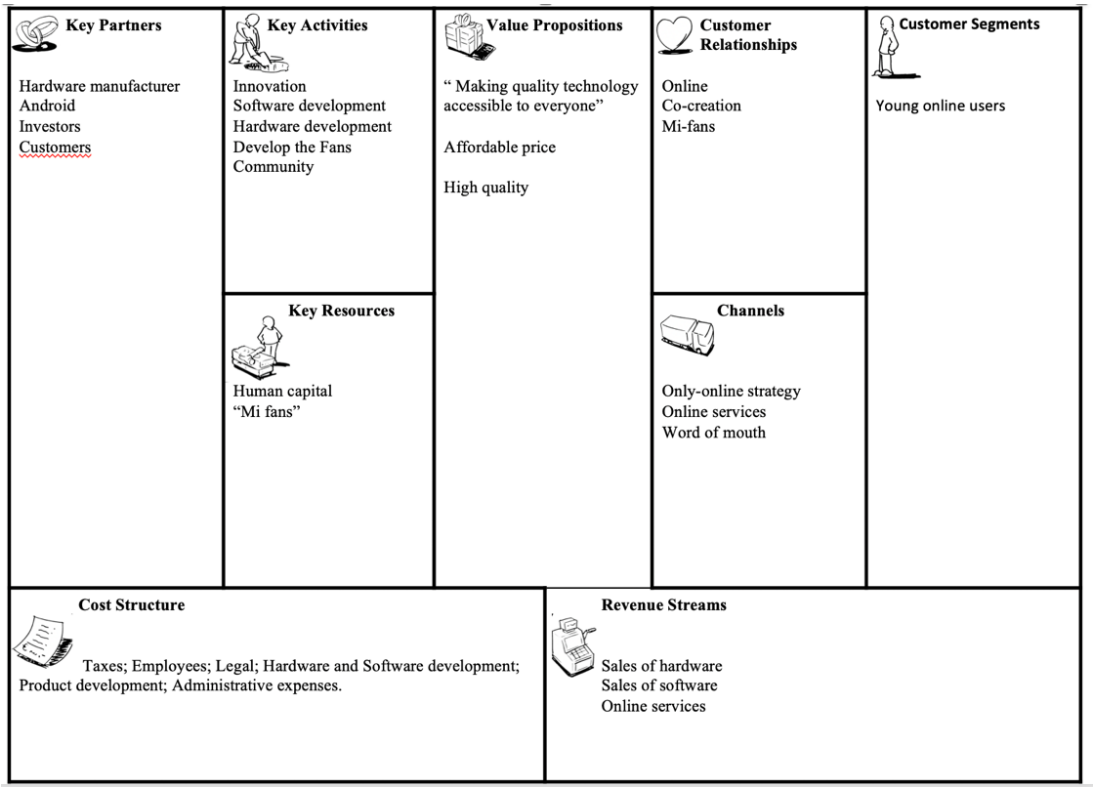
Xiaomi uses the logo "MI" which stands for "Mobile Internet". An additional explanation given is "Mission Impossible" describing the challenges faced by the organisation in the beginning which were considered almost impossible to overcome (Xiaomi website).

Xiaomi has gained a strong foothold in many markets with products available in more than 80 countries and regions globally. It is considered the world's fourth-largest smartphone company and has established the world's largest consumer IoT platform (Xiaomi website). The majority of revenues conducted outside China come from India, Indonesia and Western Europe.It would not be accurate to view Xiaomi as solely a device manufacturer; in fact, the company's business model incorporates aspects of companies such as Amazon, Netflix, Tencent, Apple and also Softbank's Vision Fund (Simon Torrance, 2018).

4.4.2 Defining the Traditional Business Model

Xiaomi launched its first smartphone in 2011 and quickly gained market share in China to become the country's largest smartphone company in 2014 (Xiaohan and Fung, 2015).

Figure 17. *Xiaomi's original BM Canvas*



4.4.3 Xiaomi's Business model innovations

Xiaomi was founded less than 10 years ago, during these years the company has conducted multiple BMI's which are presented below, resulted in a new BM different from the original.

Table 9. *Xiaomi' Business Model Innovations*

Business Model Innovation	Description	Year
MIUI theme store	Originally, the MIUI themes were offered for free. Although, when the number of users increased, the demand for personalised themes increased simultaneously. Only high-quality and creative themes could satisfy the users' needs as well as attract new customers. In order to satisfy personalization needs, Xiaomi hired additional talented designers, which requested a significant salary. In 2012, a MIUI theme store was launched and in 2013 themes became the company's third largest revenue stream. The BMI improved the company's value proposition and increase the company's attractiveness. This can be referred to as an evolutionary Evolutionary BMI (Foss and Saebi, 2017b).	**2012**
IoT Powerhouse	Xiaomi moved beyond its BM by investing in Internet of Things (IoT). IoT can be defined as a computing concept that contains the idea of internet connectivity into physical devices and everyday item*s* (Techopedia, 2018). Air Purifier and Mi Induction Heating Rice are two of the many smart products offered (Xiaomi team, 2017a). Moreover, Xiaomi established the world's largest IoT platform. The BMI can be referred to a Complex BMI (Foss and Saebi, 2017b).	**2013**
Television content building	Xiaomi launched a smart TV in 2013. With respect to Baidu's smart TV which is backed by iQiyi, Xiaomi offers narrow selection of video apps. In 2014, US$1 billion was invested into producing its own content of for instance web shows and movies. the second quarter of 2018, Xiaomi became the number one TV brand in mainland China (Xiaomi, 2019b). It can be argued that this was an Evolutionary BMI (Foss and Saebi, 2017b).	**2014**
Non smart products	Xiaomi changed the value proposition by integrating non-smart products into his business model. These are products not connected to the app, such as suitcases, backpacks and pens (Xiaomi team, 2017a). This new portfolio may have attracted a broader customer segment as well as improved the loyalty of the current customers This can be referred to as an Adaptive BMI (Foss and Saebi, 2017b).	**2015**
New Retail	The first physical store offering the ability to purchase phones opened in Beijing 2015. Previously, Xiaomi offered few experience stores, where customers could test products (Xiaomi team, 2018b). The company conducted a BMI by changing its online-only strategy. This BMI is considered as radical as it changed all nine building blocks. Because it was not new to the market can be considered an Adaptive BMI (Foss and Saebi, 2017b).	**2015**
VR	In the end of 2015, Lei Jun and Alee (co-founder) decided to advance the technology and established the *Mi lab* focusing on two research areas: AI and VR. Already in 2016, the first standardized VR headset was launched (Xiaomi team, 2018b). This BMI innovated the BM with new activities, and the focus was on a specific technology solution. Therefore, it can be referred to as a Focused BMI (Foss and Saebi, 2017b).	**2015**
Gaming segment	Internet services include online games and paid subscriptions by users of premium entertainment content. In 2015 the company started to offer mobile games in the Xiaomi app store. Today Xiaomi provides more than 7.000 published games (xiaomi team, 2018c). With this BMI the company enlarged the source of its revenues and included games development into its activities. Since other internet services existed already before, this BMI can be referred to as Evolutionary (Foss and Saebi, 2017b).	**2015**

Out of the BMI illustrated, the focus on IoT, the new offering of non-smart products and the opening of brick-and-mortar stores will be examined more in depth. The reason is that they largely impacted the company's BM and happened beyond the original core business.

Internet of Things Powerhouse

In 2013 Xiaomi started to make big investments into Internet of things (IoT). The company pursued a BMI by changing the value proposition beyond smartphones and offered smart product. The value proposition aimed at enhancing the Mi Fans' lives, where traditional non-connected products fail to. Moreover, the company sees a future where all home devices are connected to the internet and controlled by voice.

Investments were made into various tech companies focused on developing different IoT products which were then integrated into Xiaomi's ecosystem. In order for the users to control their Xiaomi smart devices by their Android, iOS or Google Assistant, they had to be linked with the Mi home app (Xiaomi team, 2019a).

The core strategy is similar to the original: offering only high-quality products, but costs less than he existing products in that category" (Kline, 2017).

The company faced challenging competition and the revenue streams from smartphone sales were declining. Therefore, the large investments made in IoT aimed to collect further revenues. Furthermore, the IoT platform was viewed as an opportunity to strengthen its brand and promote its core offerings in addition to as a business diversification (Bosnjak, 2017). Today it can be argued that Xiaomi's IoT platform is the world's largest, connecting more than 132 millions smart devices (excluding mobile phones and laptops). These are produced by Xiaomi's ecosystem partners and are subsequently integrated into the Mi Ecosystem. (Xiaomi team, 2019a).

By changing the BM and including a broader product mix, a larger customer segment could be targeted. In fact, large part of the customers owned a smart-product however not a Xiaomi phone. Furthermore, Xiaomi hoped to interact with the customers more frequently (Kline, 2017).

IoT was not the only investment made by the company. Simultaneously, investments within the AI field were carried out. In fact, Lei Jun stated that "AI + IoT" would have been the future of the market and one of Xiaomi's core strategies. Precisely, a dual core strategy of Smartphone & AIoT (AI + IoT) will be pursued in the next five years (Xiaomi team, 2019a). Xiaomi has launched several smart devices connected to the IoT platform such as Mi Water Purifier, Mi induction Heating Rice cooker and Mi Air Purifier.

Non-Smart Products

It can be argued that Xiaomi moved beyond its original value proposition when launching non-smart products such as towels, suitcases, backpacks and pens. In contrast to the smart products mentioned above, these products do not require the use of a Xiaomi app to be controlled. Consumers got confused regarding the company's value proposition. As a matter of fact, the company received some critics for this new strategy, since it was considered by the customers as a supermarket or a department store. However, Xiaomi's argued that the aim was to be more than a smartphone company. In fact, the mission was to deliver "Innovation for Everyone" and the organisation was doing that by supplying high-quality, "non-smart" consumer products to the users. Despite the critics, the company continued to launch more products in the category (Xiaomi team 2017a). In the end a broader customer segment could be reached, comprising "non-tech customers" which from that time had a reason to show interest for the company.

New retail model

One of the reasons why Xiaomi could launch its phones to an affordable price was due to the online-only sales model (Kan,2014). However, most customers in China still preferred to purchase their phones in offline retail stores. Thus, in 2015 the company radically transformed the only-online retail into a new retail model. The aim was to offer a combination of the best in online and offline retail experiences.

Furthermore, the company established self-owned Mi Home Stores, the first of whom was located in Beijing (Xiaomi team, 2018b). Moreover, the goal was to open 1000 brick and mortar stores in three years to allow sales exceed 70 billion RMB within five years (Bloomberg, 2017).

The BMI can be considered as radical and influenced multiple building blocks. In fact, the cost structure changed as the company had to pay high rents and labor cost. Moreover, the offline retail stores allowed the organization to reach a broader customer segment, deliver a better users experience, while maintaining the same price strategy as the online channels.

By enhancing the customers' ability to hand-in their phones for repair, the company simultaneously generated additional revenue streams and improved the customer relationships. The company may also improve the customer relationship due to face-to-face interaction and additional value can be created through new key activities such as in-person sales.

The brick-and-mortar stores additionally enhanced customers' perspective of "Made in China" products. The consumers were now confident that the products sold are of high quality and fair price. Additionally, many international customers turn to the offline stores (Xiaomi team, 2018b). Furthermore, in relation to the smartphone business, a multi-brand strategy was established, which made Xiaomi and Redmi two independent brands since January 2019. The first has focused on pioneering innovative technologies to mid-to-high-end markets and evolving online and offline new retail channels. On the other side, the Redmi brand can be considered more similar as the original brand, due to the focus on price-performance ratio and the online channel (Xiaomi, 2019a).

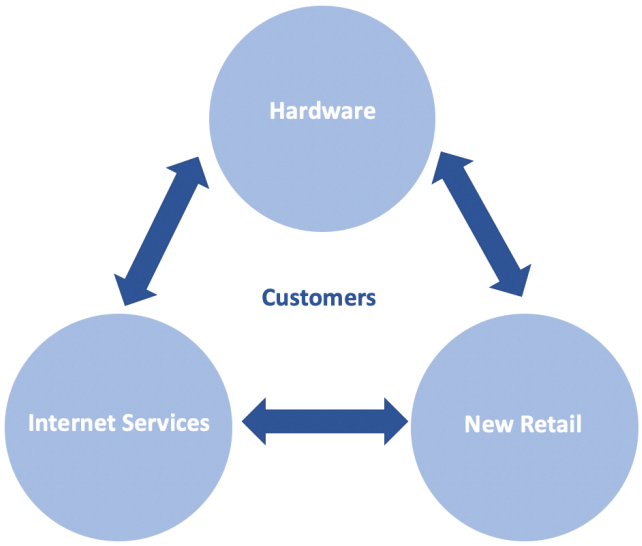
Table 10. *Summary of Xiaomi's radical BMIs*

	Transactional services	**Entertainment**	**Financial services**
Value Proposition	"only best-in-class, but costs less than the existing products in that category" Huge product portfolio of smart products.	"Innovation for Everyone" Consumer goods	Combination of the best in online and offline retail practices Repairs other smart products
Value delivery	New customer segment More frequent contact with customers	New customer segment ("non-tech customers" "non Xiaomi customers") "Mi Ecosystem"	O2O New customer Segment Improves customer relationship Brick and mortar face-to -face interaction
Value creation	Ecosystem and shared resources. AI + IoT world's largest IoT platform Manufacturers Mi-fans	Brick-and-mortar Brand Innovation	In- person-sale Already established Mi-fans
Value capture	New revenue streams Similar cost structure	Diversified revenue stream	Increased rents and labor costs

4.4.4 Summary

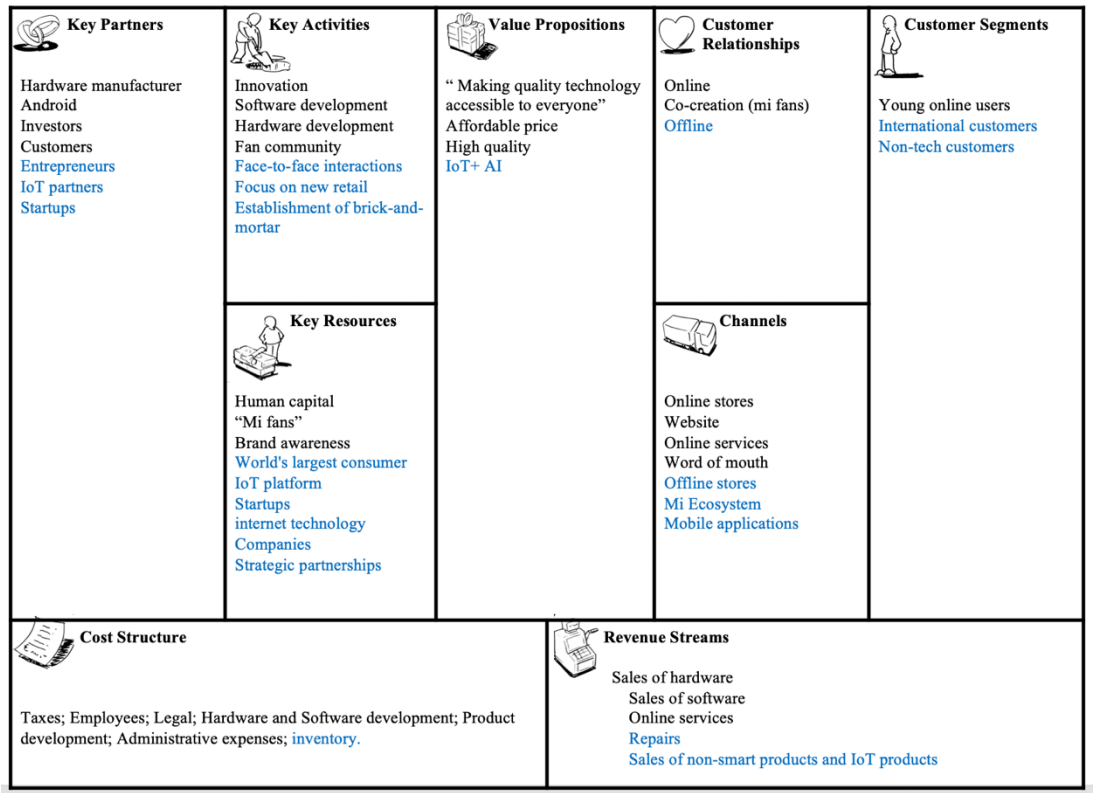
Xiaomi has undergone several BMIs, the majority of whom supported the core business. Since 2015, the company has started to revolutionize the offline retail through a new retail model, which combines the best offline and online retail practices (Xiaomi team, 2018b). Moreover, Xiaomi has gone from a "dual strategy" to its current strategy called "Triathlon business model ", which encompasses hardware, internet services and new retail. Today the company focuses on four business segments: smartphones; IoT and lifestyle products; internet services; others. (Xiaomi, 2019a).

Figure 18. *Xiaomi's Thriatlon Business Model*



4.4.5 Defining the current business model

Figure 19. *Xiaomi's current BM Canvas*



4.4.6 The interaction between the Innovation Ecosystem and the Business Model Innovation

Xiaomi realized that the offline and digital world are merging and believes that the platform-based BM is the best way to exploit the opportunities. For this reason, the company's ecosystem is considered platform-based, according to the definition by Chesbrough (2017).

Companies

Xiaomi has invested in device manufacturers like *Lumi United* and *Segway-ninebot* to produce gadgets (Liao, 2018). The company outsourced manufacturing but was involved in the design process of the products. Additionally, Xiaomi has continuously encouraged third-parties to join the open IoT platform. With the support of other companies, the desired value proposition was

reached. Increased value creation occurs both by sharing key resources, as well as allowing ideas to flourish in the ecosystem.

In 2018, a strategic partnership was signed with *IKEA* to develop smart lighting products connected to Xiaomi ecosystem (Xiaomi team, 2018e). In terms of value delivery, this partnership allowed Xiaomi to do deliver AI through new channels (Ikea warehouse) and reach new customers globally. Another example of collaboration is the *Mi VR Standalone headset* which was co-created with *Oculus*. The IoT+AI was established based on Xiaomi's own technologies; however, in 2017 Xiaomi and Baidu signed a strategic partnership to jointly develop technologies related to AI and IoT. The collaboration included sharing key resources and generating value for both parts. As already mentioned, Baidu is a leader in AI, and Xiaomi is a leading smartphone manufacturer and owns the largest IoT platform. Baidu would use its *DuerOS* conversation-based AI system to support the development of the IoT industry, and Xiaomi would apply the technologies in more real-life scenarios. Additionally, the giants started to collaborate on various technological solutions, such as machine learning and voice recognition (Nasdaq, 2017b).

Startups

Xiaomi's management claimed that a single company cannot excel at everything. Therefore, investments have been made in companies that were able to take the business into new and exciting categories. This allowed the organization to focus on the core products (Xiaomi team, 2017). In particular, while Xiaomi mainly focused on phones, TVs, routers and smart-home appliances are built by partners companies. Through the provision of venture funding to startups, Xiaomi has stimulated growth of its ecosystem. In relation to this, in 2013 a five-year plan was established, providing investments in 100 hardware startups. Moreover, Xiaomi holds ownership in more than 460 internet technology companies; 16 of whom have annual sales of more than US$16 millions. Furthermore, 4 out of 16 are today viewed as unicorns (Liao, 2018), startups valued higher than US$ 1billion (Chen, 2017). The startups will assist Xiaomi in the growth of its ecosystem by providing various smart products (Liao, 2018).

Academia

From the sources available, no significant partnership has been found between Xiaomi and universities or research institutes.

Government

With respect to its overseas competitors, Xiaomi has gained a competitive advantage, by benefiting from the Chinese government's support. For example, Google Play was blocked, along with Google's other service (Gleyo, 2015). The government also help to enhance the company's value capture by improving the cost structure. For instance, the company was given the opportunity to use a manufacturing infrastructure in Shenzhen, (a purpose-built city that caters to electronics makers) which enabled the company to develop smartphones to a low cost.

Additionally, the government has improved value creation by acting as a key partner. In fact, the government is collaborating with Xiaomi in order to develop technologies benefiting government entities and other companies. New customized layers for smartphones were created which automatically separated working environments from personal life. Moreover, when connected to a Wi-Fi network at work certain applications will be visible, in contrast to the ones visible at home.

The partnership will allow Xiaomi to have a new advertisement channel (Alermo, 2018), leading to increased value capture in terms of decreased advertising cost. Moreover, not only the chinese government should be considered, for instance the government of India raised customs duty on mobile phones from 15% to 20% in order to increase the manufacturing of smartphones in India. Making it more beneficial for Xiaomi to manufacturing phones (Aulakh, 2017).

Customers

Xiaomi has established a user-centred and open innovation business strategy. The company is unique regarding how the customers are integrated in the BM. Moreover, large investments have been conducted in the establishment of an army "mi-fans" which is one of the fundamental reasons for Xiaomi's success (Simon torrance, 2018). The Mi Fans have been involved both in the software and hardware development process. For instance, an internet forum was set up in 2010 in order to get feedback form tech-savvy users on the first version of MIUI (Xiaomi team, 2018d). The

customers both improved the value capture as the company could decrease the R&D costs and the advertising cost as the fans spread the concept by word-of mouth. Additionally, the value delivered to the customers increased, by allowing the customers to be part of the process. Furthermore, loyalty was established and it improved customer relationship.

5. Cross case analysis

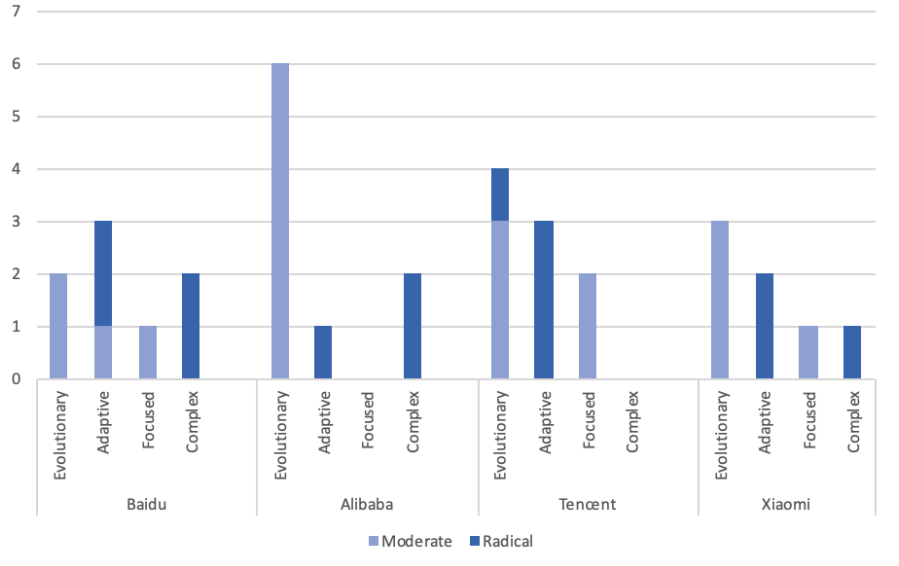
In this section the empirical findings gathered from the case companies will be put together and analyzed by highlighting the similarities and differences between the companies. The section consists of two parts: in the first, the case companies' Business Model Innovation practices will be discussed, while the second focuses on BATX Innovation Ecosystem and its contribution to the companies' Business Model Innovation.

5.1 Business Model Innovation

5.1.1 Characteristics of Business Model Innovation

According to Demil and Lecocq (2010), a business model can be approached with a static or a dynamic view. By adopting a dynamic approach, the companies have implemented several BMIs, which allowed them to move beyond their original BMs. From the analysis it was found that most BMIs were moderate, implying incremental modifications to the BM. Moreover, the major part of the BMIs was classified as evolutionary or adaptive. In other words, the change was new to the firm but not to the industry. The graph below shows the types and intensities of the BMIs identified for the four companies.

Figure 20: *Business Model Innovation intensities and dimensions*



Despite the companies implemented mostly moderate BMIs, complex BMs were originated in terms of how the activities were linked, new both to the firm and to the industry. Specifically, backward innovation and forward integration were simultaneously implemented. In fact, more advanced solutions were ideated starting from already existing products (backward innovation), while those products are integrated in unique ways (forward integration) that meet Chinese customers' needs and allow the companies to achieve competitive advantage in the market (Hylden, 2016).

5.1.2 Drivers of Business Model Innovation

From an analysis of the literature it was drawn that BMI can be a reaction to both internal and external threats and opportunities which were further confirmed by the case studies. The case companies are entrepreneurial and innovation has been in the DNA from the start. There is a constant desire to search for new opportunities, thus there was no particular year when the companies started to conduct BMI. Most BMIs identified were driven foremost by external opportunities. BATX are all technology companies operating in China; therefore, it was no surprise that the companies identified the same change drivers on a macro level in the ecosystem. The society moved towards a new Mobile-age and Industrial Internet era which opened up for new opportunities. For instance, the following external opportunities were identified from the case studied: flaws in existing market; growing market and new market trends. Alibaba has been found to be different from the other case companies, due to its pioneering approach. In fact, it was frequently the first to take advantage of new opportunities arising from the market, for example the possibility to correct flaws in an existing market, such as the financial sector. Another example is constituted by their pioneering approach when taking the advantage brought by the Industrial Internet Era and disrupting the retail market through its "New Retail" strategy.

The companies have always acted with a consumer-centric approach; therefore, changes in consumer preferences has been a major driver for BMI. From the case studies, it has been found that consumers' opinion has both acted as an external opportunity as well as an external threat for the companies. For instance, Tencent moderately innovated its business model by adding value-added services after having identified the need for personalization among their customers. They therefore opened up an opportunity for a BMI. Conversely, consumers opinion acted as an external threat when forcing Baidu to modify its BM, since the advertisements had to be based on credibility and not only on how much the advertiser paid.

Another external threat faced by the companies was competition. Furthermore, competition was found to stimulate the companies to conduct BMI either in order to differentiate from competitors, or to conduct similar BMIs as the competitions in order to continue existing in the competitive arena. An example of the first approach is offered by Baidu, which faced strong competition in several of the new market segments which resulted in spin-offs. The company instead focused on where it had considerable competitive advantage and established an BM based on AI, to build a leadership position in this field. In contrast, Tencent faced increased competition from Alibaba in the eCommerce segment. Alibaba had already conducted a BMI and was offering O2O services to the retail sector. This move stimulated Tencent to conduct a similar BMI as a follower in the market, in order not to lose its presence in the competitive arena.

BATX have shown the willingness to disrupt industries and actively search for new opportunities. It can thus be argued that the companies mostly acted with a proactive approach towards BMI, which allows to leverage new growth opportunities, as anticipated by Lindgardt et al. (2009) and Bucherer et al. (2012). Although, it was found that Baidu and Xiaomi in some situations acted with a rather reactive approach and pursued BMI in order to improve flaws in their current BM. For instance, after having been criticized by the customers because of its auction-based advertising, Baidu had to adjust its BM which led to decreased revenue streams. In order to tackle this issue, the company looked for opportunities outside its core business and pursued a BMI to overcome the internal threat of a dying business. In the same vein, Tencent's focus on Industrial Internet have been said to be a possible reaction to a slowing gaming business, which constitute a significant part of the company's revenues. Therefore, finding a new revenue stream could have been a reason for them to implement this BMI. In the case of Xiaomi, it can be argued that the company was forced to conduct a BMI from its only-online strategy and include brick and mortar. This was a necessary step for the company to conquer consumers who still preferred to purchase phones in offline environments. Without this strategic move, other smartphone-manufacturing would have a competitive advantage.

5.1.3 Business Model Innovation Process

It has been found that the major part of BMIs was supported by a new product or service offering. For example, the BMI related to FinTech sector was initiated with the launch of online payments. Furthermore, the products were often taken from the Western market and adapted to Chinese consumers' preferences through *micro-innovation*. This approach requires to do smaller and incremental changes to already-established products and obtain feedbacks from the customers to

improve products almost instantly. It can be claimed, therefore, that the four companies implemented BMI by adding new activities to their BM. Adding new activities to a business model has been outlined by Amit and Zott (2012) to be one of the way BMI can occur.
As mentioned in the first section, BATX has conducted multiple BMIs over the years, most characterised as moderate, implying smaller changes to the BM. However, the radical BMIs were often conducted through a gradual process. The FinTech-related BMIs are an example. In fact, the launch of a mobile payment platform was followed by incremental services (like insurances, loans, wealth management) which ultimately and collectively innovated the value offered to the customers. In fact, BMIs were not one-time transformations, as anticipated by (Bucherer et al., 2012; Geissdoerfer et al 2017).

In the BMI process, certain capabilities were identified such as: strong leadership; experimentation; seize and shape opportunities. The BMIs processes were led by significant entrepreneurial leaders. Robin Li the founder of Baidu has been referred to as "The Innovator" (Campbell, 2018), and Xiaomi's founder Lei Jun has been compared with Steve Jobs (Horwitz, 2018). Strong leadership has been identified in the literature as an important capability (Leith et al., 2015). Moreover, it has been found that all four companies gave importance to experimentation. Tencent's and Alibaba's interviewees particularly mentioned launch-test-improve and trial-and-error processes being part of the BMI process. Experimentation as a phase within the BMI process (Geissdoerfer et al. 2017) has, therefore, been found in the case companies. Xiaomi is unique how it uses its customers when doing both hardware and software development in order to test their solutions on the market. It can thus be claimed that all companies showed commitment to experimentation, which is both a capability required for BMI as well as a success factor of the BMI process (Chesbrough, 2010; Cavalcante, 2014; Geissdoerfer et al., 2017).
BATX were able to quickly seize and shape opportunities in the market, which has stated being a key capability by Schneider & Speith (2013) and Achtenhagen et al. (2013). Furthermore, as stated by Interviewee 3, *"solving a problem today is more valuable than solving it tomorrow, since spending time in analyzing costs ends up in costing more".* Furthemore, It was found from the case studies that one way to accelerate the BMI process is to acquire another company. For instance, instead of creating its own group buying site Baidu acquired *Nuomi*, an already established group buying unit. The strategic investments additionally accelerated its position in the increasing mobile internet market. Acquisitions were also conducted after the integration phase in order to scale. For instance, Tencent acquired several companies in the gaming segment.

As mentioned by the literature, challenges can arise during the BMI process. For example, a challenge that could arise during the integration phase is how to align the building blocks in the new model (Frankenberger et al, 2013). From the study it was found that BATX have implemented relatively different solutions to tackle the issue. For example, Tencent integrates online payments, instant messaging, social entertainment within their platforms. Similarly, Alibaba has built an integrated ecosystem through its several platforms. One way to do this was to use cross-platforms promotion to achieve synergies.

Moreover, the BMI can be implemented through a new separate unit. For instance Baidu establishment of iQiyi, in order to deliver video services. Moreover, even though the BMI are radical it often supports the core business, which simplifies the alignment of the building block in the new model. For instance, Baidu heavily investment into AI benefited the core of the search engine. Xiaomi's brick and mortar changed the only-online strategy however support the smartphone. Tencent's expansion into the entertainment segment benefited its IM users with a new social channel, where you can also establishing a community with other players online. Furthermore, Alibaba's entered FinTech by offering an online payment solution, which supported its eCommerce core business. Finally, when targeting the retail sector and implementing radical BMIs, both Alibaba and Tencent had the aims both to find potential new revenue streams, and to support other projects. In fact, Tencent could extend Wechat mobile payment system to retailers and Alibaba could increase its pool of customers data by entering in the retail segment.

5.1.4 Business Model Innovations market segments

By implementing several BMIs, the *Silicon Dragons* have developed beyond their core business. Furthermore, The BMI practice often resulted in the companies' business diversification in various market segments. Additionally, the companies are now multi-business, since they operate through several subsidiaries and affiliate companies. Examples are Alibaba's Ant Financials and Baidu's iQiyi.

It should be noted that the large user base that BATX have managed to build facilitate their entrance into several market segments. In the meantime, accessing new markets also allowed them to conquer further users. Another benefit of being diversified companies is the possibility to access a variety of consumers data. In fact, as mentioned by Alibaba's Interviewee, data about consumers' trends and preferences were fundamental for the companies' both to improve their original offering and to establish new BMs. The table below shows the main market segments where BMIs were implemented.

Figure 21: *Business Model Innovation segments*

From the analysis it emerged that all the four companies have implemented BMIs in the O2O an AI segment. Precisely, the application of O2O services to the retail sector gave birth to the concept of "New Retail", which has been put in practice by Xiaomi, Alibaba and Tencent. Xiaomi opened "Mi Stores"; Alibaba launched the "Hema supermarket"; while Tencent created "Online Social Stores". Moreover, BATX all made large investments into AI. For instance, Baidu's current BM is based on AI, while Tencent has implemented AI technology to several businesses, with the aim to achieve "AI in all". Finally, AI is a priority for Xiaomi together with the IoT to build a future dual core business model.

Diversification contributed to the companies' innovative business model. As mentioned by Amit and Zott (2012), an innovative business model can be a source of superior performance and competitive advantage. By following the principle of "One Tencent", the company diversified into entertainment, financial services, eCommerce. Tencent aimed to satisfy all customers needs and create an "Online Life". Furthermore, Alibaba wanted its users not only to "shop at Alibaba" but also "live at Alibaba"; and that's why for instance the entertainment sector was added to the BM. Regarding diversification, competitive advantage may arise for two reasons. First of all, having a diversified offering is perceived as a further value by customers. In fact, there is no need to seek for other suppliers in order to satisfy their needs. In other words, competitive advantage lies in the

customer retention. This further translates into increasing switching costs for the customers, which is the second possible reason why a competitive advantage arises.

Finally, while Alibaba and Tencent maintained their diversified BMIs, Baidu divested through spin-offs in order to focus on the core business. For instance, the financial services unit was sold. On the other side, it can be argued that Xiaomi's diversification was not as strong as other companies.

Table 11. *Summary of findings BMI*

Business Model Innovation	Main Findings
Characteristics	The majority of BMIs was moderate according to BMI intensity. According to BMI types, the majority was evolutionary and adaptive. The solutions launched were not new to the market; however, how they were combined originated complex BMs.
Drivers	BMI process driven by external opportunities: flaws in existing markets; consumers' opinions; growing market and new market trends. Alibaba showed in a lot of cases a pioneer approach. Mostly proactive approach; sometimes, reactive approach was detected in the case companies.
Process	The majority of BMIs was supported by the launch of new products/services Radical BMIs were often conducted as a gradual process Capabilities identified in the companies: strong leaders; entrepreneurship; ability to quickly seize and shape opportunities; experimentation. Challenges identified; align the BM building blocks after BMIs.The challenges were overcome differently by the companies. Radical BMIs supported the core business. Acquisitions speeded up the process of BMI.
Results	BMIs sometimes were pursued in diversified market segments. Companies are multi-business. The companies handled the BMI diversification differently.

5.2 Innovation Ecosystem

5.2.1 Characteristics of IE

From the examination of the case companies, it was found that BATX have different types of Innovation Ecosystems. Tencent and Baidu have Open Innovation Ecosystems, which according to Chesbrough (2017) imply seeking for external knowledge to achieve a superior innovative performance. On the other hand, Alibaba and Xiaomi have Platform-based Innovation Ecosystems, implying operating through platforms that offer a common interface to the companies' customers and users (Chesbrough 2011, Gawer and Cusumano 2014 and Thierry and Lescop, 2013). Additionally, it has been found that BATX are all operating in a Digital Innovation Ecosystem, shaped by both the Mobile Internet Era and the Industrial Internet. In fact, as mentioned by Suseno et al. (2018), the companies are dependent on digital technologies and social media interactions when creating value for the stakeholders. BATX has contributed to shape the way stakeholders communicate and engage with the world around them. By connecting online and offline environments, people can book tickets or hotels, pay for shopping, enjoy the same services of a bank but online. A meal can be ordered online and be delivered directly to the table without queuing for ordering or paying, control smart products through online apps.

From the analysis it can be argued that the companies' IEs also responds to the characteristics of Hub-based IE, pointed out by Nambisan and Baron (2013). In fact, the companies can be view as hub firms, holding the leading position in the ecosystem. Those firms have controls of the connections existing in the ecosystem; furthermore, they do not compete in traditional ways; they rather already established network-based assets and use them to reshape their competitive advantage in the market (Iansiti and Lakhani, 2017). For instance, Alibaba spin-off Ant Financial, is built on data gathered from Alibaba to reorganize Chinese financial sector around its platform.

As mentioned by Gulati et al. (2012), the IE's boundaries are not fixed, but rather dynamic. In fact, the companies' IE composition has changed over the years, including more actors. In particular, new startups were integrated in the IEs through several investments and venture funding. Additionally to new actors, the relationship between the actors changed. For example, Alibaba and Tencent have joined forces on a ride-hailing venture, with the purpose to cooperate in order to achieve synergies. Thus, apart from being rival in the eCommerce segment, they are now also operating as partners.

Despite the number or IE actors and their relationship can change, the IE always evolves around a focal firm, as mentioned by Autio and Thomas (2014), which has been referred to as keystone organization. From the analysis it has been found that BATX act as keystone organizations in their IE, by presenting some of the characteristics mentioned by Isckia et al. (2013). In fact, they enhance and improve the ecosystem, by offering technological expertise to their stakeholders and the industry where operating. Furthermore, the companies allow for the creation and sharing of value further strengthen the position as keystone organizations. Tencent's Open Platform, for instance, serves as an incubator for small and medium enterprises or developers to release new application through Tencent's channels (social media). As mentioned by Hou Xiaonan (2018), the general manager of Tencent's AI Open Platform "There's an immense market potential in helping companies and whole industries upgrade their capabilities with AI" (Deng, 2018).

5.2.2 The IE contribution to BMI process

From the companies' analysis, it has been found that the IE supported the BMIs throughout the process. In particular, it can be argued that it influenced the BMI during the the BMI process in four phases mentioned by Frankenberger et al (2013): initiation, ideation, integration and implementation.

In the beginning of the process, the actors contributed to open up new opportunities for the companies to innovate their business model. For instance, the government gave Baidu and Alibaba the opportunity to develop into smart cities. Additionally, it can be argued that the IE determined the direction of the BMI. In fact, when appointing BAT among the "AI National Team", Chinese government set clear priorities to the companies, by incentivising BAT to concentrated the efforts into AI, with specific priorities and purposes. Moreover, the IE stimulated the innovation of new value propositions. For example, customers stimulated Xiaomi to build its presence in offline environment. This further led to Xiaomi open its own brick-and-mortar, leading to a larger customer segment. By opening up opportunities, as well as guiding the unfolding of BMIs, it can be argued that the IE acted as a driver of the BMI.

Beyond being a driver, IE also acted as an enabler for the companies' BMIs, by further influencing the implementation of the BMI. The actors contributed to the value creation in multiple ways:

Access to a new market. As already mentioned, in some cases the companies' BMIs were based on diversification. By establishing key partnerships, or acquiring companies BATX could have a

quick access to the new market segment. For instance, Tencent acquired gaming companies and quickly tapped into the segment. Similarly, Baidu acquired group buying unit *Nuomi*. In terms or partnership, Baidu signed a strategic contract with BMW with the purpose to accelerate the development of autonomous driving.

Support to Technological Innovation. Technological innovation supported the companies' BMI and was achieved through the collaboration of actors in the IEs. For instance, Tencent and *Hang Seng Bank* collaborate to develop AI solutions in the financial service sector. This supported its FinTech BMI. Technology innovation was not only supported by companies but also by the government or universities. For instance, Xiaomi collaborated with the government in order to develop technology related to government entities.

Co-Creation. By cooperating with key partners, companies could **co-create** new value by sharing activities and resources with their IE. Creating value through collective relationships has been found to be an important characteristics of an IE by Adner and Kapoor (2010). Xiaomi is unique in the manner consumers were involved in the entire BMI process, from the beginning to the end. Without significant feedback, the company would arguably not have achieved the same results. Moreover in Baidu's new AI Business, co-creation is essential. For instance, Baidu and Ford are developing driverless cars together. Another example is the Baidu collaboration with Xiaomi in order to develop various solutions for instance regarding machine learning and voice recognition. Sharing a common set of goals ultimately allow for sharing final results, which has been mentioned to be a typical characteristics by Adner & Kapoor (2010) as well as Iansiti & Levien (2004).

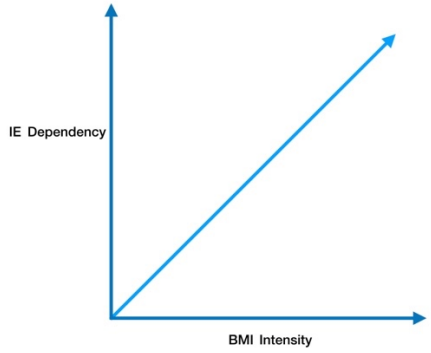
Access to knowledge and resources. When developing its AI-based BM, Baidu needed to couple its technological resources and knowledge with the expertise of car manufacturers. When turning the attention to Alibaba's "New Retail", the company opened its high-tech retail stores, the Hema supermarkets. Alibaba was born as an eCommerce platform; it was not present in the offline market before. When first entering the offline market, Alibaba established a partnership with *Intime Retail*. As a consequence, Alibaba gained expertise in the the offline retail which could be apply when opening its own offline stores. External knowledge has also been accessed through the establishment of open platforms. As mentioned by Chesbrough (2017) and other scholars, openness to external knowledge increases and accelerates the innovative output.

The IE also has an important role when delivering the new value to the customers. For instance, various industries represented a channel through which the company could deliver their value. In fact, retailers allowed Tencent to spread the awareness and attract more users offline. Baidu entered a strategic agreement with Huawei in order to deliver improved AI experienced to global consumers. One is the main advantages for Baidu, was the access to Huawei larger user base. Additionally Baidu has signed an agreement with the Changsha municipal government to change the transport infrastructure in the city. This opened the opportunity for Baidu to implement self-driving taxi and bus services. In other words, the government offered a new channel for Baidu to deliver its innovations. It can be argued that collaborating with established partners benefited the companies' trustworthy image among customers, which increase and strengthen the customer retention.

By offering support throughout the BMI process, IE ultimately affected the companies' ability to capture new value, which comprises revenue and cost structure. For example, Tencent's collaboration with Google on advertising services allowed the company to increase its revenue growth from the advertising segment. Another example is offered by Xiaomi's involvement of its customers in both hardware and software development. By having a direct feedback, the company could improve its cost structure by decreasing R&D-related costs. Additionally, the company could also decrease its advertising expenditure due to word-or-mouth of the "mi-fans", further improving its cost structure. Furthermore, the companies' diversified investments into partners and startups also allowed them to build a presence outside China, which now poses threats to Western companies. Tencent's investments in US startups are really huge.

It can be argued that the IE actors' contribution allowed for a successful implementation of new business models. Furthemore, it can be claimed that the dependency of the IE is higher during the process of a radical BMI. For instance, when conducting a BMI outside the core business the interaction with the IE was stronger; in fact, more research, resources and expertise were required. For example, if considering the smart industries, which require offline presence, strong technologies, and diversified knowledge and expertise, the companies' BMI was strongly dependent on their IE. In other words, with increased need of new resources and expertise, the dependency of the IE is higher in order to successfully deliver BMIs.

Figure 22. *Dependency on the Innovation Ecosystem*



Furthermore, relying on IE actors was also a way to face an increasing BMI complexity. Finally, through collaboration, sharing of resources, support of technological innovation, the companies could conduct BMI and achieve results more quickly, compared to if operating independently. Thus it can be argued by establishing a powerful IE the BMI process can be conducted more efficiently as well as more quicker. Additionally, as mentioned by Xu et al. (2018), having a successful IE allows for the creation of a value that the firms would not be able to create alone. In light of all what mentioned, IE was found to be a success factor for BATX's BMI. All actors identified were involved in the process and influenced the new value architecture set up through the BMIs. Figure XX, presented below represents how the different actors contributed to the companies' new value architecture.

Figure 23. *Actors' contributions to the value architecture*

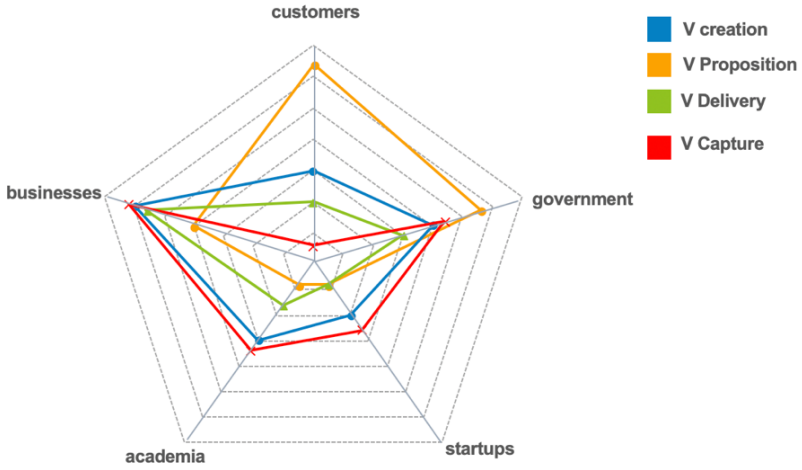


Table 12. *Summary of findings IE*

Innovation Ecosystem	Main findings
Characteristic	Baidu and Tencent: Open Innovation Ecosystem Alibaba and Xiaomi: Platform-based Innovation Ecosystem All have characteristics of a Digital and Hub-based Innovation Ecosystem
Contribution to BMI	IE involved throughout the process IE influenced mostly radical BMI outside the core business IE determined the direction of the BMI (it was a driver), through its influence on value proposition IE was an enabler and influenced the process speed, through its influence of value creation and value delivery IE influenced the value capture IE was a success factor of the BMI Main factors contributing: Access to a new market; support to technological innovation; co-creation; access to knowledge and resources

6. Conclusion and Implications

This final section provides the answers to the research questions, by focusing on the main findings from the study. Furthermore, it presents the theoretical contributions and managerial implications that this explorative study generated. Finally, it discusses the limitations, and proposes future research in order to overcome the limitations and further deepen the topic treated in this master thesis.

6.1 Discussion and Conclusion

The purpose of this study was to explore how Business Model Innovation is conducted in China. In particular, shed light on how the Innovation Ecosystem influences the process of BMI. By analyzing Baidu, Alibaba, Tencent and Xiaomi, the answer to the following research questions was provided:

RQ1*: What are the common characteristics and differences between the Business Model Innovation practice of Baidu, Alibaba, Tencent and Xiaomi?*

The findings revealed many similarities among the companies. According to the BMI characteristics, moderate BMIs were more often conducted than radical BMIs. Furthermore, few complex BMIs were identified, while most of them have been classified as evolutionary or adaptive. In relation to the drivers of BMI, changes in the macro environment such as China moving into the Mobile-age or Industrial Internet era drove the companies towards BMI**.** BMI was also driven by other external opportunities: 'flaws in existing market, 'growing market', 'market disruption', 'changes in consumer preferences'. The case companies were searching for new opportunities and primarily acted with a rather proactive approach towards BMI; however, some occasions have been recognised where BMI was a reaction to a threat. BATX have shown several capabilities fundamental to conduct the BMI process, such as strong leadership, entrepreneurship and being quick to seize and shape opportunities. According to the unfolding of the BMI process, radical BMIs were gradual and supported the core businesses. Finally, a similarity is that companies often launched solutions already existing in the Western market, and adapted them to Chinese consumers through micro-innovation. Therefore, the BMIs taken as a whole originated complex business models, new both to the companies and to the industry. A

similarity is that companies usually conducted BMIs in diversified market segments. However, while Alibaba and Tencent maintained the new diversified BMs, Baidu either scaled down or divested the new established initiatives in order to focus on the core.

RQ2*: What are the most important factors of the Innovation Ecosystem affecting the BMI process?*

The most important Innovation Ecosystem factors influencing BATX BMIs were found to be: '*Access to a new market*'; '*Support to Technological Innovation*'; '*Co-Creation*'; '*Access to knowledge and resources*' leading to *'Accelerate BMI process'.* Specifically, in the BMIs happening beyond the companies' core business, the IE provided a quick access to the new market, which was usually gained through acquisitions of other companies. Collaborating with startups and research institutes was fundamental to technological innovation, which sustained BATX in implementing their BMIs. Often strategic partnerships were signed in order to co-create value during the BMI process. Ultimately, for those BMI happening beyond the companies' original business, the IE provided new knowledge and resources. In fact, from the analysis it has been found that the importance of IE increases when the BM were radical and complex.

Through the four main factors mentioned above, the IE positively affected the companies' new value architecture. It can further be argued that the collaborations contribute to the pace of the BMI process. The results obtained reveal that the companies' Innovation Ecosystems have been drivers, enablers and success factors of Business Model Innovation.
To conclude, several factors have contributed to the success of BATX BMIs. First of all, Silicon Dragon were supported by the Chinese government. Secondly, due to China's large population the companies managed to establish a massive user base. This allowed for access to a huge pool of data. Moreover, the Chinese origin of the companies and their user-centric approach allowed for an easy understanding of Chinese consumers' culture. In fact, their C2B innovation was a strong basis for their BMI success. As a matter of fact, it can be argued that BATX could have been certain that their solutions would have met consumers' needs and preferences. Additionally, the entrepreneurial nature of the companies was a success factor of BMI as well, because it allowed for a quick recognition of the opportunities arising in the environment. Micro-innovation was also peculiar for the companies' BMI, as it allowed them to quickly improve their products and act in an agile way. Finally, by leveraging the Innovation Ecosystem, BMI was successful because it could rely on a strong support of all actors involved.

6.2 Theoretical and Managerial implications

6.2.1 Theoretical implications

The theoretical contribution can be considered twofold. In fact, the findings benefit both the literature about Business Model Innovation as well as Innovation Ecosystem. According to the BMI literature, our research study both supports and extends the existing literature on BMI. Previous research argued that having strong leaders, experimentation, deploying and support entrepreneurship, acting proactively to detect opportunities are important factors for conducting BMI. The findings have been confirmed by our case studies. Moreover, by analyzing BMI within an IE, we narrowed down the gap outlined by Schneider and Spieth (2013), related to the analysis of the BMI practice in several contexts. For this reason, we contributed to extend the literature. In particular, we generated empirical results to favour a better understanding of the BMI phenomenon, as claimed to be important by Foss and Saebi 2017.

Our findings outline how the BMI process can be accelerated in the context of a network of actors which collaborate to achieve shared results. Furthermore, our study analyzed BMI in terms of changes of BM building blocks. In particular, we contribute to BMI literature in terms of how BMI can lead to changes in the company's value architecture, comprising value proposition, creation, delivery and capture. Furthermore, we applied the BMI classifications by Foss and Saebi (2017b) to the four case companies, by contributing relevant examples to the literature about BMI types and characteristics. Finally, our Master Thesis revealed a new driver, enabler and success factor of BMI which was not previously mentioned by the literature: the Innovation Ecosystem.

The thesis also contributes to the Literature about IE by extend the existing literature on the topic. Fist of all, we found that an IE can have multiple characteristics from different IE types (digital, open, platform, hub). Additionally, our study solved the issue pointed out by Gomes (2016), which proposed to analyze how value is created in an IE. As revealed by our findings, by acting as driver and enabler of the BMI, the IE was found to be a factor contributing to a successful BMI. Moreover, IE positively contributes to the company's entering in a new market as well as to the speed of the BMI adoption and implementation. In fact, the actors contributed all along the BMI process, from the initiation to the implementation phase.

6.2.2 Managerial implications

China has rapidly moved into a mobile era and industrial internet is evolving. BATX have established a strong foothold in the market, and in order for foreign companies to reach the Chinese market, a strategic partnership can be beneficial.

Regarding BMI, our study outlines the importance of seizing and shaping opportunities in the markets, by stimulating entrepreneurship and constantly analyze what consumers need. In particular, the ability to detect changing needs or arising opportunities and to be quick at catching them allows for a first-mover advantage. Even though innovating BM beyond product and technological innovation is essential, it has been found that these types of innovations complemented the BMIs. Another important finding for the business practice regards the type and intensity of BMI. It is not necessary to pursue radical changes to achieve success. In fact, also moderate BMIs can generate business models that are not easily imitable. Furthermore, managers should act with a proactive approach and apply BMI in a changing market, like BATX did in the Industrial Internet.

Finally, an important managerial implication has to do with how the IE can contribute to the business model innovation. In particular, access to fresh knowledge coming from startups, co-creation with key partners as well as sharing of resources can speed the BMI process. For this reason, managers should consider cooperative partnerships, commitment to venture funding, and knowledge sharing in order to achieve superior results. Collaboration with the IE, in fact, has proven to be a success factor for BMI and a way to achieve a leader position in the market.

6.3 Limitations

The findings of this study have been seen in light of some limitations, which can be addressed by future research. The first limitation identified deals with the type of study. Case studies, in fact, are seen sometimes as a method which lacks generalizability and scientific rigours, as reported by Idowu (2016). According to the generalizability, Yin (2013) distinguished between analytical generalization and statistical generalization. The first aims at expanding theories, while the second at enumerating frequencies. Due to the lack of quantitative methods in our thesis, we lack statistical generalizability. However, as mentioned by Yin (2014), case studies enable a researcher to examine the data in a specific context, and are the preferred strategy when studying a contemporary phenomenon within a real-life context, as BMI practice. Furthermore, as mentioned

by the same author, case studies are mainly suited to achieve an analytical generalization, which was the aim of our thesis. In fact, the purpose was to close gaps in existing BMI literature and, therefore, expand theories.

Another limitation is related to the BMI identification. In particular, since we identified BMIs mainly with the launch of a new product/service, there is a potential risk or underestimation of BMIs. This means that BMI that started within the company, which were not reported to external press, may have not been detected by the authors, therefore leading to a potential biases in the number of identified BMIs. Furthermore, only the most successful BMIs were analyzed in detail.

The last limitation relates to the data collection, in particular information from the interviews. Some obstacles to achieve a great number of interviewee were: language barriers which restricted the people that could have been contacted; managerial positions searched, which implies less time available to dedicate to interviews. Since a low turnover was expected and we considered the possibility of having biased results, the choice was to use interview findings more as a confirmation of the data gathered from other sources, rather than as a source of new knowledge. Furthermore, triangulation was used, which implies data gathering from multiple sources. With non-restricted time, managers could have been contacted with additional means apart from Linkedin, for example through network building by taking part in events and seminars.

6.4 Future research agenda

Due to the findings and the limitations of our study, we have suggested potential directions for future research. Quantitative studies can be carried out on how the IE impact the company's performance in terms of market share after BMI is conducted.

Another stream of research could focus on producing descriptive studies using both quantitative and qualitative methods to gain further insights into the companies' BMI capabilities. Furthermore, a similar study can be conducted on other emerging companies in China, in particular unicorns, which are contributing to shape current trends like Industrial Internet Era. Similarly, an explorative study could be conducted in another industry, for example fashion industry, maritime industry, transportation sector, energy industry.

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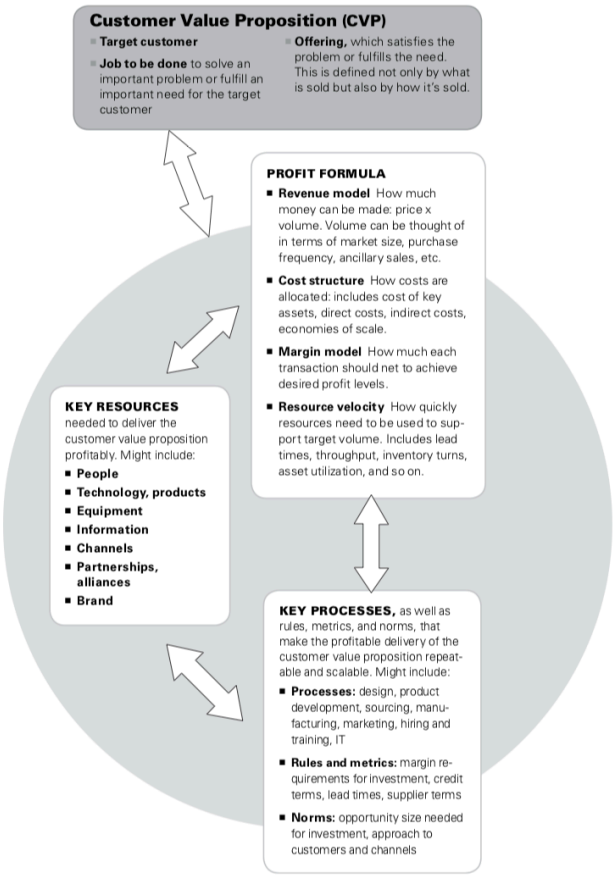
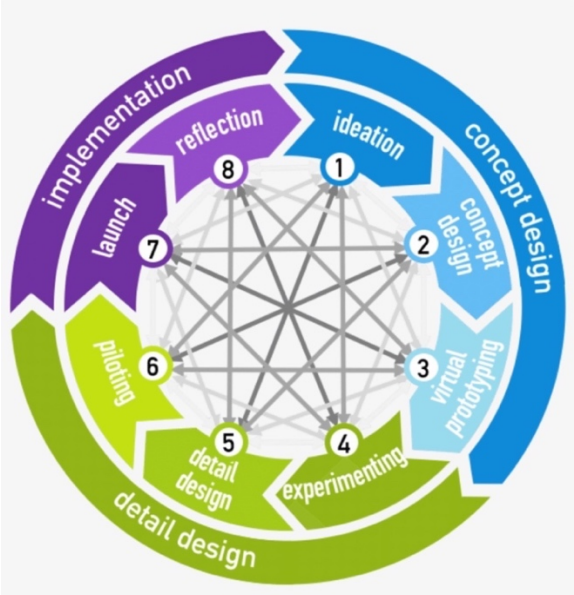
8. Appendix

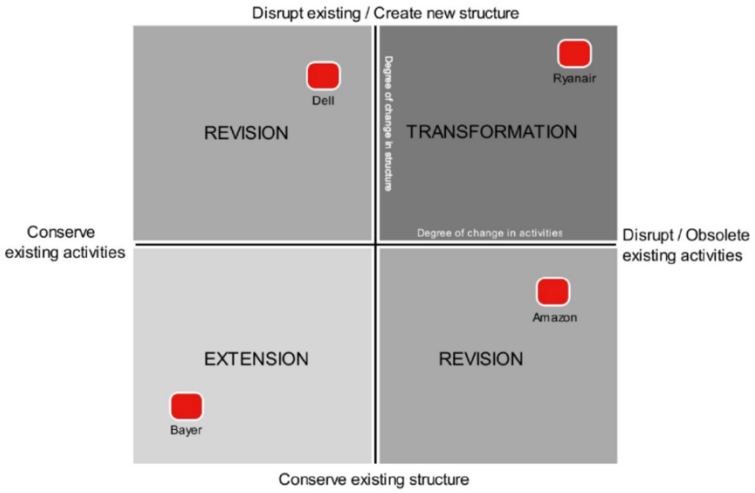
Appendix 1: Four Box Business Model (Johnson et al., 2008)



Appendix 2: Cambridge Business Model Innovation Process (Geissdoerfer et al., 2017)



Appendix 3: Business Model Innovation Map Framework (Florén and Agostini, 2015).

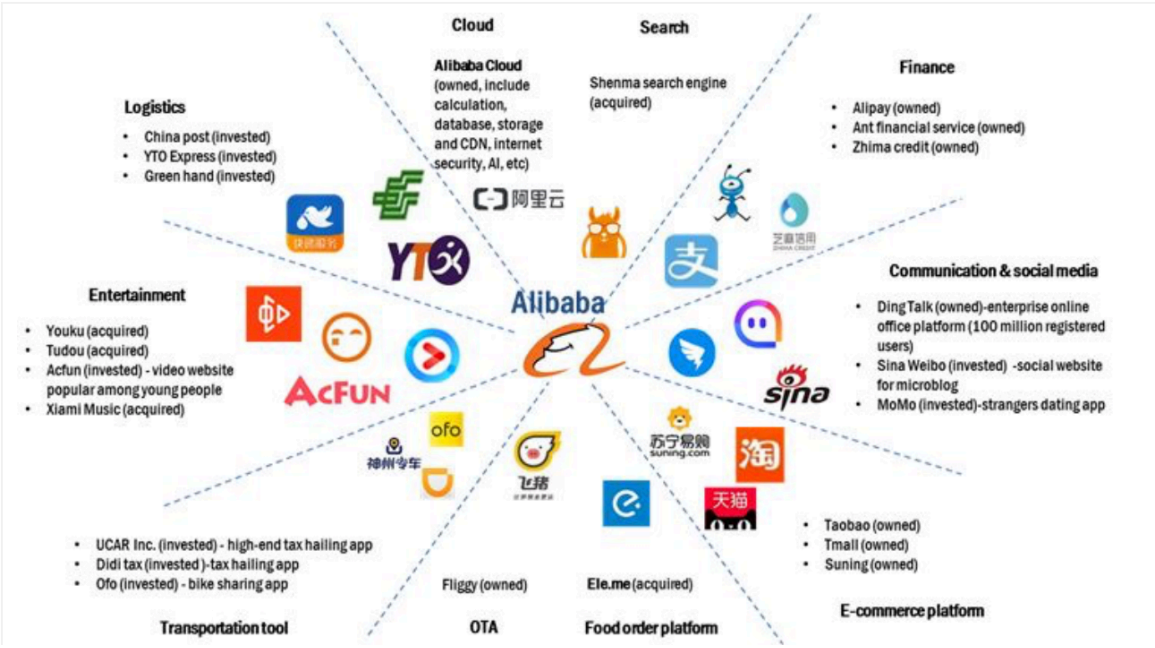


Appendix 4: Interview Questions

- Is there a particular year when *The Company* started to innovate its business model?
- Can you describe the two most relevant changes that happen in *The Company*'s business model? For example, new customer segment, new value proposition, new revenue streams, new channels, new operating model?
- What do you consider to be unique in the way *The Company* innovates its business model?
- What are the drivers of Business Model Innovation?
- How would you summarize *The Company's* approach to innovation?

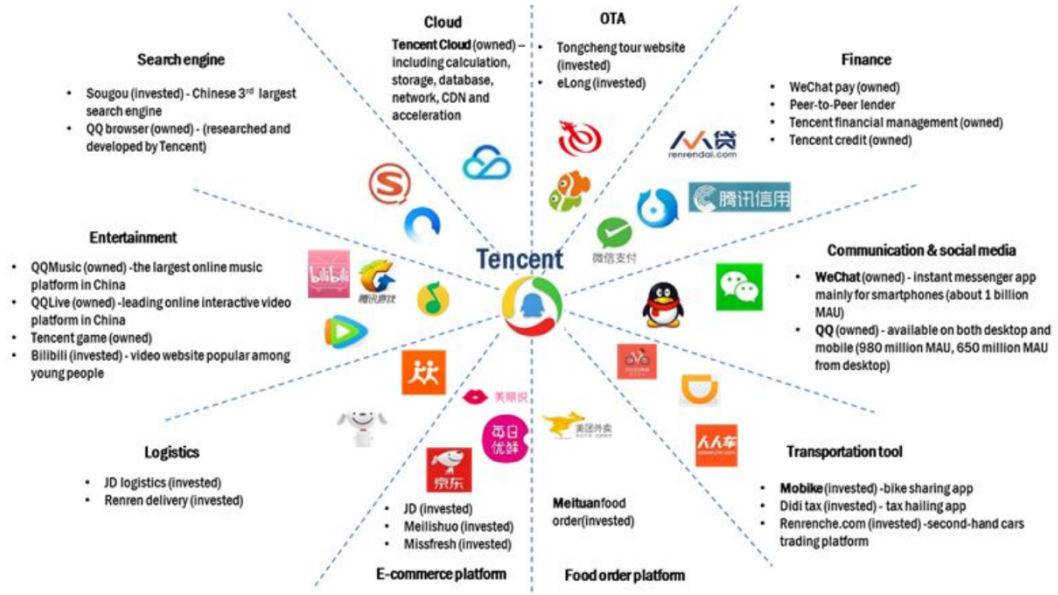
- What are the main actors of *The Company's* innovation ecosystem?
- How has Tencent built specific partnerships aimed at innovation, specifically business model Innovation?
- How has *The Company* IE influenced its business model innovation process?
- We read that Chinese government has stimulated *The Company* to achieve a superior innovation. Can you give some example of a business model innovation and which actors of the IE were involved?

Appendix 6: Alibaba's ecosystem



Source: Daxue Consulting, 2018.

Appendix 7: Tencent's ecosystem



Tencent's ecosystem

Source: Daxue Consulting, 2018.