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To cite this version:

Shang Gao, Xuemei Zhang. Understanding Business Models in the Sharing Economy in China: A Case Study. 15th Conference on e-Business, e-Services and e-Society (I3E), Sep 2016, Swansea, United Kingdom. pp.661-672, 10.1007/978-3-319-45234-0_59 . hal-01702170

HAL Id: hal-01702170

https://inria.hal.science/hal-01702170v1

Submitted on 6 Feb 2018

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Understanding Business Models in the Sharing Economy in China: A Case Study

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Abstract. Along with a growing environmental consciousness and the advancement of information communication technology, car sharing and apartment sharing as the prominent examples of the sharing economy is becoming increasingly popular in China. This study aims to have a better understanding of business models in the sharing economy in China. Four research questions are presented. On the basis of a literature review on the business model and sharing economy, we proposed an analysis framework consisting of four major dimensions of business model concepts to study how the sharing economy works in China, including value network, value architecture, value proposition, and value finance. To address this, a case study with the Uber China is carried out. The key findings from the case study are presented in accordance with identified four dimensions of business model concepts.

Keywords: Business model, The sharing economy, Value network, Value proposition, Value architecture, Value Finance, Uber

1 Introduction

The sharing economy refers to the phenomenon of turning unused or under-used assets owned by individuals into productive resources [25]. The emerging of the sharing economy has opened a new door for competitions across industries (e.g., Airbnb in the hotel industry, Uber in the taxi industry). Online services offered in the sharing economy enable people to share cars, accommodation, bicycles, and other items with others who are willing to pay to use them.

The key companies in the sharing economy are disrupting traditional industries across the globe. These companies bring significant economic and environmental benefits. For example, the car sharing service provided by Uber is a powerful way to reduce carbon emissions, to save money on transportation, and to reduce traffic [18].

In today's ever changing dynamic business environment, the business model plays an important role in the success of many companies [12]. The growth of sharing economies of production and sharing economies of consumption has attracted

academic attention in recent times [17]. However, to our knowledge, there has not been much research on business models in the sharing economy in developing countries.

In this study, we focus on business models in the sharing economy in China, specifically focusing on the case of Uber China, a provider of car sharing services and a pioneer of the sharing economy. The objective of this study is to have a better understanding of business models in the sharing economy in China. To address this, we employ four key dimensions of business model concepts to formulate the question research questions to study business models in the sharing economy with the case Uber China. As a result, the following research questions (RQ) are proposed:

RQ1. What actors are involved in the sharing economy in China, and how are they related?

RQ2. What resources and activities are essential to the success of the business of an actor in the sharing economy in China?

RQ3. How do different actors make profits in the sharing economy in China?

RQ4. What are the key values offered by each actor in the sharing economy to its customers?

The remainder of the paper is organized as follows. Section 2 reviews the theory on business models. Section 3 introduces the research methods. Section 4 presents the analysis framework. A case study with Uber China is carried out in Section 5. This is followed by a discussion and conclusion in Section 6.

2 Literature Review

The literature about the sharing economy and business models is discussed in this section.

2.1 The Sharing Economy

Sharing economy has emerged as alternative suppliers of goods and services traditionally provided by long-established industries [27]. The sharing economy can be defined as a socio-economic ecosystem that commonly uses information technologies to connect different stakeholders-individuals, companies, governments, and others, in order to make value by sharing their excess capacities for products and services [13]. Moreover, Botsman and Rogers [5] indicated that sharing the economy underlies the business model in the operation of collaborative consumption, where people offer and share underutilized resources in creative, new ways.

Sharing economy activities fall into four broad categories: recirculation of goods, increased utilization of durable assets, exchange of services, and sharing of productive assets [22].

2.2 Literature on Business Models

The business model is a fundamental concept to manage strategic development of an organization. A business model tells what the business of an organization is all about. A business model can be defined as the description of an organization or network of organizations involved in creating and capturing value based on technological innovation [6].

This concept can also inform the design of information systems and support sustainable development of an organization. Previous research have looked at the concept of business models in the context of specific domains (e.g., e-Business [3], e-Government [14], digital ecosystems [23], mobile ecosystems [12]).

However, there is a lack of literature on business models in the sharing economy, particularly in developing countries. Although the business model is very important to the success of many enterprises [10] [11], very few publication can be found to address the business model in sharing economy in the literature. Daunoriene et al. [9] provided an approach to address the sustainability of sharing economy business models. The following four perspectives have been identified in their study: economy, environment, society, and technology [9]. Zrevas et al. [27] studied the impact of Airbnb on the hotel industry in Texas. Their research findings provided some empirical evidences that the sharing economy is making inroads by successfully competing with, differentiating from, and acquiring market share from incumbent firms. In this research, we aim to complement current literature on business models in the sharing economy with a case study from China.

According to the literature review, while the term "business model" is extensively used, there is no widely agreed upon definition of what constitute this concept. Therefore, we had an overview on the existing definition on business model. Some of the different views of the concept of the business model are presented here.

As explained by Petrovic et al. [20], a business model is the logic of a "business system" for creating value that lies behind the actual processes. It gives a complete overview of an organization and the process of constructing a business model is part of any business strategy.

Afuah and Tucci [1] defined business models as a system of components (customer value, scope, pricing, revenue sources, connected activities, implementation, capabilities and sustainability) and relationships between these components.

Basically, the business model consists of three things: the type of goods/services provided, the business model archetype and a revenue model [21]. Further, Methlie and Pedersen [15] defined a business model as consisting of three dimensions: 1). Service strategy, this includes service value proposition, and market focus; 2). Governance form, this refers to the ways in which flows of information, resources and goods are controlled by the parties of the value-creating business network; 3). Revenue Model, this includes revenue valuation and sharing.

Amit and Zott [4] illustrates that the business model depicts the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities. Furthermore, Morris et al. [16] defines that a business model is a concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and economics are addressed to create

sustainable competitive advantage in defined markets. It has six fundamental components: value proposition, customer, internal processes/competencies, external positioning, economic model, and personal investor factors.

Based on the similarities among a wide range of business model conceptualizations, Osterwalder and Pigneur [19] proposed a reference model, called "Business Model Canvas" (BMC), including customer segments, value proposition, channels, revenue streams, key resources, key activities, key partners, customer relationships, and cost structure.

Al-Debei and Avison [2] employed a content analysis approach to review the existing business model literature and identified the following four major dimensions of the concepts of business models: value proposition, value network, value architecture and value finance.

3 Research Methods

The objective of this research is to investigate business models in the sharing economy in China. To address this, we firstly derived an analysis framework based on previous literature on business models. Then, we carried out a case study in terms of the derived analysis framework in China.

A case study [26] is useful in the early stages of research on an emerging research topic, when there is not much available literature. As indicated in the last section, there are only few studies addressing business models in the sharing economy. Therefore, we believe that case study is an established method designed for addressing the proposed research questions.

Data was collected mainly through four face-to-face interviews with staffs from Uber China and through some internal documents provided by the managers in Uber China in October 2015. The interviews were conducted based on the four research questions proposed in Section 1. We recorded the face-to-face interviews digitally. The interviews took on average 90 minutes. All the interviews were conducted in Mandarin. We retained and analyzed the data in the original language and only translated into English at the time of writing. A member of the research team who was proficient in both Mandarin and English preformed the translations to ensure consistency.

After data collection, the data was coded for further analysis. Strauss and Corbin [24] defined selective coding as the process of selecting the central or core category, systematically relating it to other categories, validating those relationships, and filling in categories that need further refinement and development. This coding approach fit well with the setting of this study. Therefore, we used selective coding technique [7] to code and organize the interview data. A coding schema was developed for business model in the sharing economy in terms of the analysis framework presented in above. The four dimensions in this framework are: value network, value architecture, value proposition, and value network. For example, if the emergent data was closely aligned with an identified dimension, we used selective coding to associate this piece of data to the dimension.

4 Analysis Framework

As presented in Section 2, following a comprehensive review of the literature on business models, Al-Debei and Avison [2] identified that the value proposition, value network, value architecture and value finance were the four key elements to be examined when designing, analyzing, and evaluating business models. In this research, we reused this analysis framework (see Fig. 1) to investigate business models in sharing economy in China. The four dimensions [2] in the framework were presented as following:

- Value network: describes inter-organizational relationship with a business model.
- Value proposition: refers to the way in which organizations create value for their customers and for each party engaged in service provision.
- Value architecture: represents how an organization's resources and core competencies are configured to create and provide value to customers.
- Value financial: relates to the way revenue are generated and costs are structured in the business model.

The reason for basing the analysis of business models in sharing economy on the proposed four dimensions was that it is an established method for business analysis with clearly structured categories [2], which is highly associated with the objective of this study.

Some statements from the interviews contained key findings that could bring answers to the RQs. We also found that some other statements might not address the RQs directly. But these statements provided background information for the case analysis.

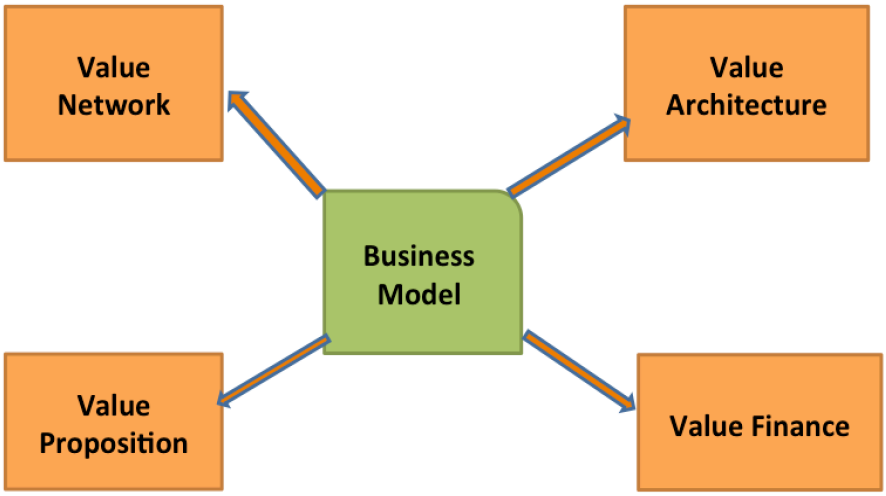

Fig. 1. Fours Dimensions of Business Model Concepts

By analyzing the interview data based on the four dimensions of business model concept, we were able to extract elements to answer the RQs. The RQ1 can be addressed by studying value network dimension. The resources and activities in RQ2 are found as value architect dimension. Each actor' capability to make profits in RQ3 is associated with value financial dimension. The value offerings in RQ4 are linked with value proposition dimension.

We selected our cases based on two conditions. First, the organization should be a good representative organization in China. Second, the organization should have a strategic plan to engage in the sharing economy. Uber China is one of the most popular ride-hailing platforms engaged in the sharing economy in China. In addition, Uber China is also proactive in collaborating with other actors in the sharing economy. Thus, Uber China was chosen as our case in this research.

5 Case Study

5.1 Case Background

Uber is a typical peer-to-peer marketplace in the sharing economy. Uber got its start in 2009 as a private luxury car service in San Francisco. It then began raising venture capital and launched a mobile smartphone app in 2010 that enables potential customers to call for a ride, get a price quote, and then accept or reject it [8]. The company expanded to UberX in 2012, enabling customers to arrange for rides in smaller, less expensive cars [8]. Uber was officially launched in Mid-July 2014 and was expending very fast in China. According to the annual report from Uber China in 2015, Uber has entered 21 cities up to December of 2015 in China, among which Chengdu has the best performance.

Uber is able to provide real-time, and location based ridesharing. Consumers can use Uber app on their smart devices to submit a trip request which is then routed to Uber drivers who use their own cars. The Uber app on the smart devices allows consumers to indicate when and where they need a pickup, and drivers on the other side of the platform respond to the request. Consumers need to store payment information on Uber App. Neither the rider nor the driver deals with payments. Uber takes a percentage of the fare, and the rest goes to the driver.

The rest of this section analyzes the data collected in the case study according to the identified four dimensions in the analysis framework presented in the last Section.

5.2 Value Network

From the data collected from the four interviews, we have identified the following actors interacting with Uber China in the sharing economy:

1. Mobile device manufacturers: manufacturers that manufacture mobile devices to customers.
2. Platform operator (Uber).
3. Mobile network operators.

4. Consumers: individuals and organizations that use ridesharing services, and drivers.

5. Governmental regulatory agency: a governmental authority that issues the policy and regulations on ridesharing services.

6. Third party partners: partners that help Uber recruiting drivers, and provide navigation services for drivers.

7. Investors.

8. Competitors.

Uber provides its service to both customers and driver through mobile data networks. Therefore, the mobile network operators play an important role in the sharing economy. For example, Uber Wuhan (i.e., one of the local branches in China) has reached a strategic cooperation with Hubei Unicom, which one of the mobile network operators in China. For example, Hubei Unicom provided a customized SIM card with a good deal on data plan for Uber drivers in Wuhan. Consequently, Uber driver can save money when they are using mobile data with Uber app. And Uber highly recommends its drivers to purchase this SIM card. As a result, Hubei Unicom can get more subscribers from Uber drivers in Wuhan.

One of the interviewee indicated that Uber China had reached a strategic cooperation agreement with the governmental agency in Wuhan in October 2015. The world's largest operations center of Uber will be established in Wuhan in the near future. This center aims to provide a better service to both drivers and riders in China. Consequently, this operation center will provide hundreds of job opportunities for citizens in Wuhan. Thus, this creates a win-win situation for both Uber China and the local governmental agency.

Third party partners are also playing important roles in the sharing economy. For example, one of the interviewee indicated that local car leasing companies also help Uber recruit and manage drivers. Moreover, there are some navigation service providers (e.g., Google Map, Tomtom) to provide navigation services for both drivers and riders on Uber. Baidu is a well-known company for search in China. Baidu is also a key partner of Uber China. Baidu integrated the Uber API, which is available in Baidu Maps and the Mobile Baidu search app.

Uber's Chinese investors include HNA Group, CITIC Securities, China Pacific, China Life and Guangzhou Automobile Group, other investors including Vanke, Minsheng Bank and China Broadband Capital Partners. In addition, the Baidu Inc involved in China's A, B rounds of financing.

Lastly, a good competitor can also promote the development of sharing economy. Didi, which is a domestic ride-sharing company, is the biggest competitor for Uber in China. Both Uber China and Didi spent billions in their battle for market share. Both companies raised billions from investors in the past two years as they were trying their best to secure their positions in the fiercely competitive market by offering both drivers and passengers' subsidies that have proved as important incentives to attract Chinese consumers. As a result, consumers often switched between two platforms.

5.3 Value Proposition

Uber can provider better ride experience in contrast to the traditional taxi-hailing services in China. On one hand, Uber has its own requirements for being a qualified Uber vehicle. All Uber China vehicles have to be less than 5 years old in China. This means all the Uber China vehicles are quite new in Chinese market. On the other hand, Uber China has it's own specific requirements to become an Uber driver. Most interviewees indicated several times that good services ratings and good on-time rates are two of the important requirements to be Uber drivers in China.

Most interviewees also indicated that Uber was seen as a disruptive innovation to traditional taxi-hailing services. The objective of Uber China is to make sure that riders can get a car as easy as possible. Uber used some well-designed algorithms on dynmic pricing to helps supply meet high demand at specific areas.

Moreover, Uber China can help vacant vehicles to be better used to reach a high capital efficiency. Uber is able to generate value by matching unused cars and under-used cars with consumers willing to pay for the ride-sharing services.

5.4 Value Architecture

One of the interviewee indicated that human resources (e.g., experienced employees) are essential to the success of Uber China in the sharing economy. Uber China tended to employ local elites to manage their local business since these elites have a better understanding of the local market. When Uber China plan to start business in a new city, Uber China only operate the following two departments to mange the business under the general manager: the operational department and the marketing department. The local Uber team also has the authority to plan all kinds of localized operational and marketing activities according to consumers' demands.

Having a large user base is another key resources for Uber China. As a platform, the consumers of Uber include drivers and riders. Uber aimed to deploy least vehicles in a city to meet the consumers' demands most efficiently. One of the interviewees indicated that the market share of Uber China on the mobile transportation platform has been increased from 2% at the beginning of 2015 to 35% at the end of 2015.

Key activities capture the most important things an organization does to make its business model work. As for Uber China, the interviewees indicated that the key activities include recruiting qualified drivers, attracting riders, providing good customer services to both riders and drivers, having good relationships with third party partners.

Uber also made great efforts in localization with its operation in China. Uber China devoted itself in localizing the service. Most interviewees mentioned several times that one of the key strategies of Uber China was to increase their ability to localize effectively in China. For example, Uber China changes default map service into Baidu map in China. One of the interviewees referred to the following story as another example on localization. Chengdu is a city famous for being the home of the giant panda in China. To be in line with this local characteristic, Uber built many panda themed meeting points in Chengdu. As a result, these meeting points make it

convenient for drivers to locate their passengers, and also for people new to the city to meet up for a ride.

Some of the interviewees also indicated some risks for Uber China. Some drivers may leave Uber's platform to other competitors in China. Moreover, the government's support is crucial for the success of Uber China in the mobile transportation marketplace in China as it decide if the private car's company with its ride-hailing services is legal or not. The governmental agency might issue detailed local policies that could negatively affect Uber's operation in China. Last but not least, unlike licensed taxi drivers, private citizens providing ride-hailing services do not always purchase commercial insurance for passengers.

5.5 Value Finance

One of the main sources of revenue is the platform commission. Uber China charges 20% of each ride fare as platform commission. However, the tax issue is a grey area for Uber China. Many sharing economy companies are true intermediaries, providing a platform for consumers rather than providing services directly. However, there is no such role in the traditional economy. This also applies to Uber China. Thus, city regulators need to formulate relevant rules and tax policies for companies doing business in the sharing economy.

On the other hand, some interviewees said that, actors involved in the sharing economy could benefit each other by exchanging resources. One of the interviewees took the following case in Uber China-Wuhan branch as an example. Uber China-Wuhan branch had reached a collaborative agreement with the largest local supermarket chain in Wuhan. Uber China-Wuhan branch purchased electronic shopping gift cards from the supermarket chain at a cost of 60 thousand RMB per week. These shopping gift cards were mainly used as incentives to attract both drivers and passengers on Uber China. In return, the local supermarket chain offered complimentary exhibition spaces to promote Uber China in its 38 physical stores.

Mobile network operators are another important actor in the Uber-based sharing economy. Customers' demands for mobile data and phone calls are increasing in the Uber-based sharing economy. This opens an opportunity for mobile network operators to increase their profits.

The key findings from this case study are summarized in Table 1 in the next page.

6 Conclusion and Future Research

This study has investigated business models in the sharing economy in China. Firstly, on the basis of a literature review on business models, we proposed an analysis framework consisting of four dimensions to study how the sharing economy works. We employed a case study methodology to understand business models in the sharing economy in China. The results revealed that the Uber-based sharing economy is a network composed of different actors, who can contribute to coevolution of each

other in the network. The key to success is to build and sustain a sound network by incorporating helpful and complementary actors.

Table 1. The business model of Uber China in the sharing economy

	Uber China in the sharing economy
Value Network	Mobile device manufacturers. Platform operator (Uber). Mobile network providers. Consumers: individuals and organizations that use the services, and drivers. Governmental regulatory agency. Third party partners: partners that help Uber recruiting drivers, and provide navigation services for drivers. Investors. Competitors.
Value Proposition	Better ride experience. Used some well-designed algorithms on dynmic pricing to helps supply meet high demand at specific areas. High capital efficiency.
Value Architecture	Human resources (e.g., experienced employees). A large user base. Localization. The key activities include recruiting qualified drivers, attracting riders, providing good customer services to both riders and drivers, having good relationships with third party partners. Avoid some potential risks (e.g., formulating the regulation on insurance for passengers)
Value Finance	Platform commission. The governmental regulatory agency charges the tax on the service. Mobile service operators charge users for data packages.

This research contributes to the literature on business models in the sharing economy by employing the analysis framework for analyzing key business model dimensions of the case on Uber China. It reveals how business models can support the development and evolution of the sharing economy in China. Some of findings from this case study in China are in consistent with previous research finding from Uber in other countries. For example, Cusumano [8] indicated that Uber is violating regulations for transportation services—insurance, training of drivers, and licenses in some countries.

Concerning the practical implications, this research provides some important insights for the development of the sharing economy in China. Uber China needs to further ensure users' safety, protect users' privacy, and self-regulate the health of itself in the sharing economy. At the same time, consumers should use ridesharing services with a clear understand of their rights and obligations. The sharing economy is a new concept and many local governmental agencies are not familiar with the business model in the sharing economy. The companied involved in the sharing economy can initiate some meeting to address some problems together with the

local governmental agency. It would be better for the managers of sharing economy companies to explain their business to regulators rather than wait for regulators to approach relevant companies with a concern. As a result, the companies can possibly avoid some misperceptions about their business with the local governmental agency.

We are also aware of some limitations. First, the generalizability of our findings is limited by the fact that they are based on a single case study. This can be addressed by conducting more case studies in future both in China and in other countries. Second, our insights are subject to the data available from the conducted interviews, which may not completely reflect business models in the sharing economy in China. However, the coding scheme helped us analyze the data in a structured way.

The findings of this research also provide a good basis for further investigation. The analysis framework can be used for further research on business models in sharing economy. We also plan to carry out a comparative study to investigate the difference on business models between Uber China and Uber in some other countries in the future.

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