Research on the Influencing Factors of Business Mode Innovation in the Context of Sharing Economy

Setting Didi Travel as an Example*

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Abstract—In 2015, Premier Keqiang Li proposed in the Summer Davos Forum to engage in innovation and entrepreneurship through sharing and collaboration, and to vigorously develop sharing economy in China. With the maturity of information technologies such as mobile internet, smart terminals, and cloud computing, the sharing economy has officially kicked off. The essence of sharing economy is the rational allocation of resources which is achieved through leasing. The emergence of the sharing economy has completely changed the operating model of existing enterprises, and the rapid rise of many companies such as Didi Travel, Pig Short-term Rental proves the great potential of this business model. Therefore, taking the sharing economy as an entry point of this article and expounding the connotation of the business model firstly in this paper. Then the business model canvas is used to deconstruct the business model of Didi Travel. Finally, the main factors affecting the innovation of business model of Didi Travel is summed up in the end, with the expectation to provide experience for companies that are urgent for transformation.

Keywords—business model; Didi Travel; innovation; sharing economy

I. INTRODUCTION

The core of business model innovation lies in value creation. The current academic research on corporate business models focuses on the following three aspects: firstly, the impact of business models on business performance. The business model is a dynamic process for enterprises to realize value creation and value acquisition. It is also a comprehensive concept that describes the specific operating process of an enterprise. The positive role of effective business model innovation in business performance has been widely recognized by scholars at home and abroad. Secondly, it is the exploration of the path which led to innovation of the platform-based business model. The maturity of cloud computing, LBS and other information technologies provides a fertile ground for traditional enterprises to realize business model innovation. Platform-based enterprises are the most active form in this economic background which has become a hotspot of the research at home and abroad. Finally, the research on the factors that influence business model innovation is also popular among the scholars home and abroad. Scholars at home and abroad have not yet agreed on the definition of business model, however, the four-factor theory of business model, three-factor model and business model canvas are highly acknowledged. Most of the researchers explained the innovation of business model from the perspectives of enterprise value proposition, key resources, core competence and profit model. It can be seen that domestic and foreign scholars have formed a more comprehensive research system for business model innovation. However, we still need to recognize that the sharing economy is developing rapidly, and the existing academic research is still far behind of its development. In particular, the existing research on the influencing factors of business model innovation is little and limited to the elements of traditional business model, and it is difficult to jump out of the inherent thinking framework.

II. LITERATURE REVIEW

A. The Connotation of Sharing Economy

Compared with domestic scholars, foreign scholars have begun to study this economic phenomenon earlier and have more research results. Marcus Felson and Joe Spaeth proposed the term "sharing economy" as early as 1978. They defined the “sharing economy” as an interconnected platform which created by an independent third party to exchange idle resources for both supply and demand. Robin Chase (2015) proposed three elements that constitute a shared model, resource surplus, sharing platform, and broad willingness to participate. In 2016, Sharing Economy Working Committee of Internet Association of China released the "Development Report of Sharing Economic of China", which believes that sharing economy refers to the integrating and sharing a large number of decentralized idle resources to meet the needs of diversified economic activities through modern information technology.

B. Business Model Canvas

In 2008, Osterwald et al. proposed the "business model canvas". They advocated to divide business models into four interfaces: product (service), infrastructure, customer and financial operations, covering value proposition, target customers, customer relationships, key business, core resources, important cooperation, channel access, cost

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structure, revenue. Value proposition refers to the value that a company can provide to its customers by specific products or services. The target customer refers to the main target audience of the company. Customer relationship refers to the establishment and maintenance of the trusty relationships between customer and company, which is used to connect the target customer and the value proposition of the company. Key business refers to the business with unique advantages, and it is also the backbone of the business model of company. Core resources are unique resources that can help companies gain core competitiveness. Important cooperation means strategic cooperation and resource sharing with other enterprises in the situation where the limited resources are difficult to meet the needs of enterprises. Channel access describes the various ways by which an enterprise can deliver products (or services) to the customer. The source of income described how a company to profit. The cost structure is the total cost which is quite required for the normal operation of the company. The paper aims at analyzing the existing business model of Didi Travel and summarizing the core elements that influence the innovation of the business model.

III. CASE STUDY — EXAMPLES OF DIDI TRAVEL

In 2012, Didi Travel was formally established. Its business scope covers: Didi taxi, Didi premier, Didi designated driving, Didi bus and other services. By the end of 2018, there were more than 550 million registered users, about 31 million registered drivers in the Didi Travel. People can take the service from Didi in more than 500 cities. It is an excellent one-stop travel platform for people who prepare to have an excursion. The business model canvas will be used to illustrate the business model innovation of Didi Travel in the context of sharing the economy.

A. The Value Proposition of Didi Travel

"Make the trip better" is the mission of Didi Travel, which is means that to provide consumers with better services is the value proposition of Didi Travel. In order to meet the diversified requirements of consumers, Didi has launched a series of travel services, including the Didi taxi for the mass consumer, the Didi premier for high-end consumers, and the maternal and child car for these special groups etc. It can be seen that Didi has made segmentation for the target audience, accurately launched the "best" services for each group and constructed a huge travel product matrix. Compared with the traditional taxi, such "customized" travel services are obviously more popular with consumers. The value proposition of enterprise is an important cornerstone for the normal operation of the entire business model. Accurately grasping the points of demand from consumer and providing high-value services is the foothold of enterprise business model innovation.

B. The Target Customers of Didi Travel

Didi Travel is a typical bilateral user platform. The target customers of Didi Travel are not only consumers with travel needs but also drivers who provide travel services. For the customer, compared with the traditional rental, Didi Travel will classify the consumers into different groups by travel requirements, and introduce differentiated and high value-added services for different groups. For example, Didi manage to ensure that customers can enjoy the high-quality travel by the huge matrix of mobile travel services. Besides, detailed records of each trip are made to ensure that the every order can be traced throughout. For the drivers, these users are mainly drivers that meet the requirements of Didi Travel. Didi has established Didi University that attempts to provide professional training for drivers. The Didi University have not only satisfied the professional development of drivers, but also enhanced the value of travel services provided to its customers.

C. The Relationships with Customers of Didi Travel

This paper mainly elaborates the relationships between Didi and its customer from the aspects of the establishment and maintenance of relationships. As explained above, Didi Travel is a bilateral user platform that faces both users, including demanders and suppliers of travel service. Early, when Ali, Tencent and other capitals were poured into the network car market, there were several comparable providers of travel service. However, Didi managed to expand the market, achieved brand promotion and accumulated the first batch of resources of users in which Didi subsidized customers and drivers by virtual red envelope to attract people to settle in and cultivate new habits of traveling. And then in order to maintain market share and prevent user from loss, Didi calmed down from the fierce "Money Burning War" and further thought about the maintenance of the relationships with customers. Didi turned from the subsidy to the upgrade of quality of the service provided. For the passenger, Didi has shifted from subsidy to upgrade the quality of service provided. For example, Didi manage to ensure that customers could receive high-quality travel services by setting up evaluation system of drivers to facilitate passengers to timely feedback. Besides, detailed records of each trip are made to ensure that the order can be traced throughout. For the driver, Didi managed to reduce the driver's No-load rate through the "Intelligent order matching system" which could ensure the order from passengers can be scientifically matched to the most suitable drivers. Didi has maintained a good relationship with bilateral users by means of improving service quality and enhancing user experience.

D. Key Business of Didi Travel

Didi Travel is a typical Internet platform-based enterprise in the context of sharing economy. Integrating the scattered idle resources by taking advantage of mobile internet technology and enabling users on both sides of the platform to reuse idle resources by renting. After the passengers inputting the destination in Didi Travel app, the Didi Travel manage to match the passengers with the closest drivers by LBS positioning, cloud computing and other technologies. When the passenger and the driver matched successfully, the driver's detailed personal record and real-time distance will be sent to the customer. At the end of the trip, passengers can pay the bill by Alipay or WeChat. The maturity of mobile internet technology provides a good technical environment for the development of the network car market. Cloud computing and artificial intelligence algorithms can realize the information symmetry between the demanders and the
supplier, so that the demand side and the supplier can be quickly matched.

E. Core Competence of Didi Travel

This article describes the core competencies of Didi Travel from three aspects: services, data technology and partners. The first is the unique commercialization of scenes of Didi Travel. Didi rental, Didi premier, Didi express, Didi designated driving, Didi bus et al. constitute a huge matrix of mobile travel services, which could covers most of travel scenarios and meet the travel requirements of customers in different scenarios.

Then the paper describes the core competencies of Didi Travel from the perspective of technology of big data. Information symmetry between supply and demand is the most advantage of shared economic enterprises. The bilateral users of the platform can release and receive information through the mobile terminal, which can effectively solve a series of problems caused by the information asymmetry between the supply and demand in the traditional mode, such as inefficiencies and high intermediary costs. Didi mainly makes profits by providing bilateral users of the platform with an efficient interaction mechanism which can enable the supply and demand sides quickly matched. Didi could obtain the position information of the passenger and the driver in real time by LBS positioning technology, and help users on both sides to communicate directly. On the other hand, Didi also plan the path and reduce No-load rate by making good use of cloud computing and artificial intelligence algorithm. At the same time, the passengers reduce the intermediate links and costs by publishing travel demand directly on the platform. It can be seen that the establishment and operation of the platform which achieved information symmetry between supply and demand under the support of mobile internet technology is pivotal to the enterprise. Didi Travel turned from an APP developed based on LBS, GPS positioning technology, to the cloud platform which achieve big data layout, and then to machine learning methods, which can accurately predict supply and demand, scientifically match orders, quickly improve travel efficiency and enhance the value of information.

The last but not least, the advantage of industry chain also was vital for enterprises. In 2017, Didi and 31 auto companies established "THE D-ALLIANCE" which is comply with the development trend of the industry. The alliance was aimed to realize the cooperation with different companies within the industry chain, to reduce the operating costs of all links in the industry chain and to build an open & shared one-stop operator. At the same time, the alliance has reached an agreement with Ctrip, Baidu Map, WeChat etc., which combine a range of demand and supply, such as transportation and payment, and create a complete ecological chain for travel.

F. The Channels of Didi Travel

This article describes the channels between Didi Travel and customers from the aspects of brand promotion and products and services of mutual connection. From the perspective of brand promotion, Didi Travel has occupied 90% market share and earned high brand awareness among people by the end of 2018. Earlier, Didi quickly increased brand awareness and accumulated users by the effects of news about the competition with rivals such as subsidy war. Then, in order to achieve precision promotion, Didi deeply explores characteristics and consumption habits of passengers through the technology of big data. Finally, Didi open the platform to reach strategic cooperation with related companies, which can achieve customer sharing between related businesses. For example, it provides Webapp / API/SDK and other products for Baidu map and other partners to access the car service. At the same time, the companies can also exchange resources and achieve brand promotion in the form of mutual coupons.

In terms of product service, according to the scenarios of high-frequency, such as travel and entertainment, commuting and social networking, Didi Travel and related partners access each other to meet the consumer's closed-loop taxiing scene. In this way, Didi united partners to build a travel industry chain, enrich operational resources and deploy operational activities, which can improve the quality of service and optimize experience of customers. When the passengers completed the trip, they could evaluate the travel service, and other users on the platform could see the evaluation in real time. Transparent evaluation system can regulate the management of travel and improve the quality of travel services.

G. Strategic Partners of Didi Travel

In terms of partners and alliances, from the perspective of horizontal development, Didi has merged with Fast, Uber China etc., integrated high-quality resources in the industry, shared traveling data of passengers, portrayed travel habits and improved the quality of service. From a vertical perspective, Didi has integrated resources of the industry upstream and downstream. And Didi has established "The D-Alliance" with 31 automobile companies to create an open and complementary one-stop car operator platform, which could integrate supply and demand within the industry chain, achieve full cooperation and reduce operating costs in each link.

H. The Source of Income for Didi Travel

The first is the intermediary service fee. Didi primarily earns intermediary fees by providing information services to users on both sides of the platform. However, the drivers are generally charged a 20% fee while the passengers have no need to pay. Secondly, it is the fee for promotion from other companies on the platform. At present, Didi Travel is the leading taxi software in China which accounting for 90% market share and owning 550 million users. Therefore, Didi has attracted a large number of advertisers to settle in. Then, the database about passengers can also bring benefits to Didi. Didi has accumulated a large number of traffic information of various cities and provided the database to local governments and urban construction departments. In this way, Didi could get support from government in return. Finally, Didi has reached a strategic partnership with many platforms such as WeChat and Alipay, from which Didi was also able to get benefit.
I. Cost Structure of Didi Travel

In the terms of cost, the cost of the Didi is smaller and more cost-effective comparing with the traditional taxi. Because Didi Travel is just an intermediary platform that provides information services to both supply and demand, and also is a typical light-asset enterprise. The cost mainly includes the following two parts: The first is the construction and operation costs of fixed assets such as Didi Bus, and Didi Platform. Secondly, Didi Travel relies on cloud computing and intelligent algorithms to schedule and match vehicles. It requires a powerful server and data computing center to support the daily operation of Didi. Therefore, the operating expenses of the data center are another important cost of Didi.

IV. Analysis of the Factors Affecting the Innovation of Business Model of Didi Travel

Based on the above analysis of the business model of Didi Travel, the author extracts the six factors that influence the innovation of business model and refines the relationship among them, as shown in "Table I".

<table>
<thead>
<tr>
<th>Core factors</th>
<th>The relationships between the factors</th>
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<tbody>
<tr>
<td>Differentiated services</td>
<td>Didi classify customers into different groups according to consumption requirement, pay attention to the diversified demand form different groups and launch the &quot;personalized&quot; services. Constructing a huge matrix of travel services to manage to provide the best service for each consumer and enhance the experience of every consumer.</td>
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<tr>
<td>The experience of users</td>
<td>Emphasis on the experience of bilateral user. For the passenger, Didi launched the evaluation mechanism, order traceability, upgrade of security and product matrix to enhance the experience of passengers. For the drivers, Didi try to gain drivers' trust through the subsidies, charity assistance, vocational training etc. By enhancing the experience of users, to attract more users and accumulate data about traffic. Forming a competitive barrier based on &quot;user resources&quot;, integrating industrial resources and realizing value chain expansion in the end.</td>
</tr>
<tr>
<td>Layout of big data</td>
<td>Powerful cloud computing technology and artificial intelligence algorithm scan could scientifically match orders and plan paths, which can satisfy consumers better. The maturity of Mobile internet technology helps Didi get rid of the framework of traditional rental companies and establish barrier to competition which is an important support for Didi to achieve business model innovation.</td>
</tr>
<tr>
<td>Brand promotion</td>
<td>In the early days, Didi Travel quickly expanded its popularity by the effect of news about the subsidy war with competitors’ “Fast Taxi”. Subsequently, deeply exploring the characteristics and consumption habits of users with big data technology and achieving &quot;targeted&quot; promotion. Finally, relying on the open platform, Didi manage to reach strategic cooperation with related companies, and to achieve brand promotion. High visibility of the company could help to build competitive advantages and reach cooperation with other companies.</td>
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<tr>
<td>Barrier to competition</td>
<td>With the deepening of brand promotion under the support of strong capital, Didi accumulated a large number of users, and established competitive advantages and formed competitive barriers based on big data of users. At the same time, Didi has established strategic partnerships with multi-party platforms such as Alipay, WeChat, and Gaode Map to achieve value extension and competition barriers construction.</td>
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<tr>
<td>Value-chain extension</td>
<td>Didi integrated resources of the industrial chain upstream and downstream , reduce operating costs in each link, achieve customer conversion and value chain expansion</td>
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Based on the above core concepts and categories, a relationship model between the influencing factors of the business model innovation of Didi is constructed, as shown in "Fig. 1":

![Fig. 1. The relationships of core factors that lead to the innovation of business model of Didi.](image)

V. Conclusion

Based on the above analysis of the business model of Didi Travel, the author extracts the six factors that influence the innovation of business model and refines the relationships among them, which can provide a reference for enterprises that would like to improve business model.

Firstly, high value-added product service is the most important factor for the innovation of business mode. The quality of services directly determines the core value provided to the user. Didi classify customers into different groups according to their consumption requirement, pay attention to the diversified demand from different groups and launch the "personalized" services for each group, and tries their best to improve the core value of products and travel experience. However, it seems that the huge matrix of
service constructed by Didi can cover all travel scenarios and play an important role in improving the experience of users and expanding the market.

Secondly, it is necessary to improve the experience of users. In the era of self-media, people who are active on major social networking sites have a huge voice and the “voice” from ordinary people may attract great attention. Therefore, the high-quality services provided to customers could quickly improve the corporate image and enhance the brand value. However, due to the rapid fermentation of social media, the low-quality experience will corrode the corporate image at a speed that exceeds our imagination.

Then, it is the layout of big data. To integrate idle resources and provide an interactive mechanism for supply and demand is the key to the value creation of economic-sharing enterprises. Therefore, it is important to build a platform that realizes information symmetry between the demand and supply under the support of mobile internet-technology. Improving the capabilities of data analysis and mining and mastering cloud computing and artificial intelligence algorithms are crucial for companies that want to achieve transformation.

The next is to launch brand promotion. In an emerging industry, marketing is essential to companies that want to quickly occupy the market and accumulate users. From the fact that Didi and The Fast get the capital support almost at the same time, the difference among the same type of enterprises in a certain market is very subtle at the early time. There is no doubt that brand promotion is vital for enterprises to occupy market and accumulate users. Those companies that occupied a large number of market share firstly are often able to gain competitive advantages and establish barriers to competition.

The last but not least is to expand the value-chain and establish barriers to competition. As explained above, launching brand promotion plays an important part in establishment of barrier to competition. The extension and appreciation of the value-chain could construct barriers to competition as well. By merging competitors, the company could integrate high-quality resources in the industry, improve matching efficiency and realize a high-valued industry chain. At the same time, the company could reach strategic cooperation with enterprises upstream and downstream in the industry by which the company could integrate supply and demand within the industry chain and reduce operating costs in each link. There is no doubt that company could realize expansion of value-chain and establish barriers to competition by optimizing the allocation of resources.

REFERENCES


