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# The Legitimacy of a Sharing Economy-Enabled Digital Platform for Socioeconomic Development

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**Abstract:** A sharing economy based on improved ICT is an emerging economic–technological concept. Sharing economy-enabled digital platforms in China have changed patterns of consumption, exploited under-utilized resources, and increased employment. Previous studies on sharing economy-enabled digital platforms mainly focused on the positive and negative effects, users’ perception and behavioral intention, and the business model, but few studies have addressed these platforms for socioeconomic development from the perspective of legitimacy. This study applied legitimacy to analyze a typical sharing economy-enabled digital platform in China for socioeconomic development via a longitudinal interpretive case study. A process model of variation and evolution of an online car-hailing platform for socioeconomic development was inductively derived, allowing elucidation of the complexities and interplay of regulative challenges, normative challenges, and cognitive challenges in each developmental phase, resulting in improving and enriching the way people go out, optimizing resource allocation, increasing employment, and undertaking social responsibility. The findings of this case study provide a comprehensive and supported framework and demonstrate a successful model for managers and other peer organizations for future business efforts in the sharing economy.

**Keywords:** sharing economy; sharing economy-enabled digital platforms; ICTs for development; legitimacy; case study



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## 1. Introduction

Information and communications technologies (ICTs) have enabled the rise of the sharing economy, defined as the peer-to-peer-based activity of obtaining, giving, or sharing access to goods and services, coordinated through community-based online services [1,2]. Companies following the sharing economy business model are considered as sharing economy-enabled digital platforms (SEDPs). SEDPs such as Uber and Airbnb have shown remarkable growth and acceptance worldwide. These platforms have empowered individuals to easily and collaboratively make use of under-utilized inventory via fee-based sharing [3,4]. On the supply side, these platforms have enabled people to become drivers for the day or rent out their spare rooms. On the demand side, consumers using these platforms primarily benefit from increased competition [5–8].

SEDPs are predicted to counter socioeconomic problems such as hyper-consumption, pollution, and poverty by lowering the cost of economic coordination at the community level [9,10]. Specifically, SEDPs are praised for their contribution to promoting significant economic, environmental, and entrepreneurial development using under-utilized resources, promoting changes in consumption, an increase in employment, and a reduction in carbon dioxide emissions [9,11].

However, SEDPs have been repeatedly accused of exploiting regulatory loopholes, tax evasion, creating unfair competition, and shifting risks to consumers [12]. Legitimacy challenges of SEDPs have been the most significant barrier since their inceptions [11], including conflicts with regulatory rules, normative values, and cultural practices [13]. To succeed and grow sustainably, SEDPs must obtain legitimacy [14].

Previous studies of SEDPs have mainly focused on the positive and negative effects [6,7,15–18], users' perception and behavioral intention [19–27], and the business model [5,28–30]. Few studies have examined how these platforms for socioeconomic development deal with legitimacy challenges, which is more important for sustainable developments of SEDPs.

We therefore set out to examine the research questions: How do institutional factors influence a SEDP bringing about socioeconomic development? To study the complexities and interplay of institutional factors that can influence a SEDP for socioeconomic development, in this study we draw on the institutional legitimacy theory to gain some insight into the importance of institutional factors and offer a conceptually rich model for observing the nonlinear routes of a SEDP for socioeconomic development.

We performed a longitudinal interpretive case study of a typical and successful online car-hailing platform in China, DiDi Chuxing (subsequently described as DiDi). DiDi offers many app-based transportation options for the public, such as express, premier, hitch, and taxi. DiDi carries out these services, helps hundreds of million consumers in urban areas save transaction time and costs, provides part-time jobs for more than ten million private car owners, and contributes to several types of socioeconomic development [31]. DiDi was first funded in 2012 to provide a taxi service, then started a premier service and merged with Kuaidi in 2015. After operating express and hitch services for the public, DiDi announced the acquisition of Uber China in 2016. DiDi is one of the leading SEDPs in China, especially in the area of car hailing. However, DiDi's ongoing progress in socioeconomic development comes with legitimacy issues.

We have two main research objectives. First, through an interpretive case study, we aim to identify the set of institutional conditions that can facilitate or inhibit a SEDP in socioeconomic development in four distinct stages. Using institutional theory, we explore how variations in institutional pillars have affected the online car-hailing platform in socioeconomic development. Second, we use a longitudinal study to ascertain how the legitimacy of this SEDP has varied and evolved. Analysis of the results from this case study can advance our understanding about legitimacy challenges that arise in operation of a successful SEDP for socioeconomic development. The main contributions of this paper are as follows:

1. We show that a SEDP for socioeconomic development is influenced by regulatory pressures, normative values, and social-cognitive belief. We also find modified legitimacy in all three institutional pillars benefits a healthy and robust platform for socioeconomic development.
2. We indicate that institutional pillars of a SEDP based on ICT can contribute to socioeconomic development include improving and enriching the way people go out, optimizing resource allocation, increasing employment, and undertaking social responsibility. We also illustrate how technology brings success and lead to socioeconomic development based on institutional legitimacy theory in a SEDP setting.
3. We used a process-oriented and historical research design in our longitudinal interpretive case study, characterizing how the legitimacy of a SEDP varied and evolved. The institutional forces were different in early and later stages of the SEDP; in the first three phases, the SEDP encountered many more problems due to insufficient legitimacy than in the fourth phase.

The remainder of this work is organized as follows. In the next section, we present a literature review on ICTs for development, SEDPs for development, legitimacy and the legitimacy of the sharing economy, followed by a description of our research proposal. We then present our research methods and findings of our empirical investigation, and discuss the results. The final section concludes with the theoretical and practical implications of this work, and describes the limitations of our conclusions and future research directions.

## 2. Theoretical Framework

### 2.1. ICTs for Development

ICTs have been at the center of economically developed and developing countries, both nationally and globally [32]. There is often an unquestioned belief that investing in ICT is a clear path toward social and economic development [33]. Most studies have examined how ICTs promote development, have focused on the contributions of ICTs to development, or tried to comprehensively define development [34].

ICTs for development are expected to increase economic growth, as evidenced by increased gross national product or per capita income based on neoclassical economics or Keynesian economics [35], to increase modernization from the post-decolonization era of Asia and Africa, and promote social changes of wealth accumulation, rationalization, innovation, and social education [36]. In addition to the narrow focus on income and consumption, the goals of human development include overcoming development challenges such as poverty and unequal consumption, promoting sustainable development, and facilitating changes in social structure related to gender equality, human rights, and democracy [37].

Decades of research on ICTs for development reveals that technology often fails to meet these intended purposes [33,38–40] and that technological diffusion may not necessarily lead to development according to typical indexes. Walsham and Sahay call for a need to carefully explore the “meaning of development” and ICT’s role in a more precisely defined developmental process using promising theories such as institutional theory and development economics [34].

### 2.2. Sharing Economy-Enabled Digital Platforms for Development

Recently, important technological changes in ICT have allowed individuals to collaborate and share information, which has facilitated physical and nonphysical goods and services sharing [9,41]. A sharing economy based on improved ICT is an emerging economic–technological concept, referring to sharing product and service consumption over online platforms [42,43].

SEDPs reduce information asymmetry [44], enable resources to be used more efficiently [45], provide non-standardized, non-specialized, differentiated innovative services [46], improve service quality and reduce transaction costs [5,47], facilitate environmental protection, and save unit consumption while greatly increasing the consumption scale, bringing more choices for the public [48], increasing social connection and recognition of a sense of community [46,49]. Thus, SEDPs bring about socioeconomic development with significant economic, environmental, and entrepreneurial benefits including access to under-utilized resources, changes in consumption, an increase in employment and a reduction in carbon dioxide emissions [9,11].

Previous studies of SEDPs have mainly concentrated on the positive and negative effects [6,7,15–18], users’ perception and behavioral intention (service quality, satisfaction, loyalty, trust, perceived risk, purchase intention, and intention to co-create value) [19–27], and the business model [5,28–30]. Guo et al. emphasize the importance of calculative-based trust and institution-based trust in the reduction of uncertainty and risk of drivers using the DiDi platform [19]. Shah et al. illustrate that both trust development and less privacy-safety risk contribute to value co-creation with survey data from DiDi users in China and Uber users in Pakistan [20]. Few studies have examined how SEDPs develop for socioeconomic development. For example, Li et al. adopt a text mining approach to find two new driving forces of SEDPs promoting economic and social benefits; that is, technological and regulatory innovation.

### 2.3. Legitimacy and the Legitimacy of Sharing Economy

Legitimacy issues in general emerge with a new business or a change in the market. Problems with legitimacy can be addressed by regulations and effective management. Organizations can actively manage their relationships with the institutional environment

in which they operate [50–52]. Institutions are social structures based on taken-for-granted, formal, or informal rules that control (or support) and restrict social behaviors [53]. Institutions are comprised of regulative, normative, and cultural–cognitive elements that, together with associated activities and resources, provide stability and meaning to social life [13]. There are three institutional pillars that correlate to each of the three different mechanisms of isomorphism: coercive, normative, and mimetic [13,54,55], and these mechanisms can shape and influence how organizational practices or innovations spread within an institutional setting.

According to this view, organizations increase in legitimacy when they behave or take actions to conform to regulatory requirements, normative structures, and cultural values [56]. These three factors can contribute to a power social framework in interdependent and mutually reinforcing ways. To analyze the elements in an institutional framework, it is necessary to identify their different underlying assumptions, mechanisms, and indicators [13].

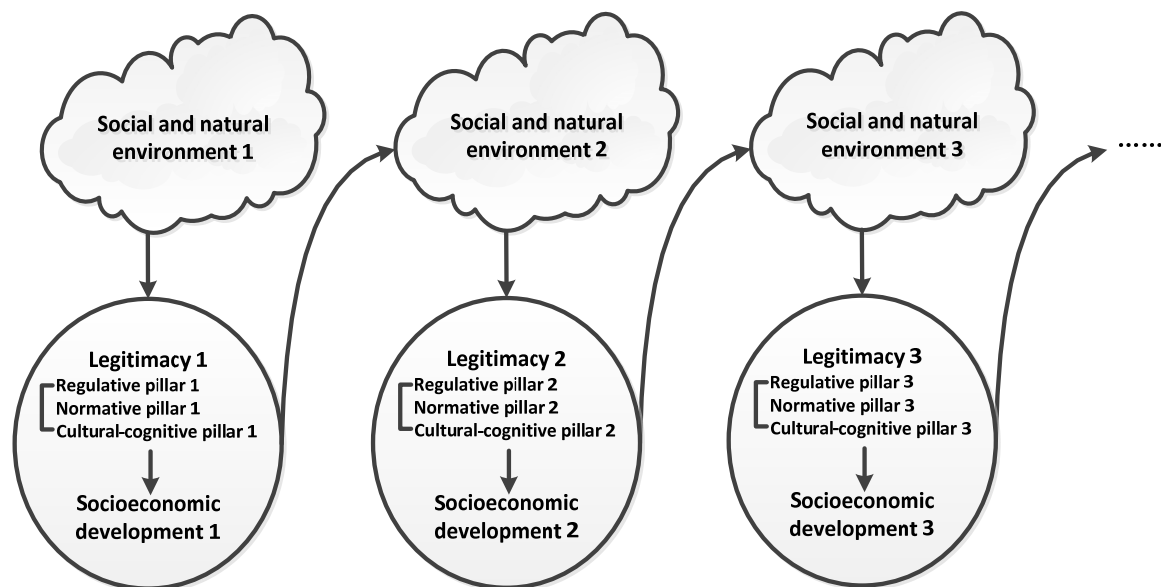
The first institutional pillar includes rules and regulations. These work as the basis of coercive isomorphism to control and constrain organizational behaviors through the power of enforcement and the power to impose sanctions and other penalties for non-compliance with the set rules. The second institutional pillar refers to compliance with the set of norms and values held within a social system, which determine the appropriateness of organizational actions [13]. Norms describe how things should be done and represent the accepted and appropriate ways to achieve defined goals and objectives. The third institutional pillar is cultural–cognitive. In addition to complying with regulatory rules and normative values, organizational actions must conform with the cultural–cognitive beliefs embedded in an institutional environment [57]. This cultural–cognitive dimension is the basis for symbolic representation, norms, and meanings shared in a broader social context [58]. The distinction between the normative and the cultural–cognitive pillar is that the former focuses on social obligations and binding expectations normally specified by standards or industry policies, while the latter is the common framework of meaning embodied in social routines or industrial culture.

In terms of the legitimacy of the sharing economy, some studies concentrate on developments in the evolution of the sharing economy considering both identify claims (self-referential) and legitimacy (granted by stakeholders) [59], and how the sharing economy is formed and evolved as a category and whether the sharing economy is legitimate [60]. Legitimation is a complex social process, involving how stakeholders (both entrepreneurial organizations and prospective resource providers) confer the formation of categorical and organizational identities, and perceptions about the viability of their business models [61]. Thus, the influence/role of audiences is important as they assess the viability of categories and organizations and can grant or withhold legitimacy [61]. The more atypical a given organization is, the more likelihood that audiences will positively respond to it and, thus, grant it legitimacy, which on the other hand, provides a distinct competitive advantage for that non-conforming organization [62]. The legitimation of the sharing economy, complementarily, depends on certain key determinants: sameness, distinctiveness, credibility, cognitive legitimation, and sociopolitical legitimation [59–61,63]. While cognitive legitimation relates to the level of public knowledge about a new activity, sociopolitical legitimation relates to the process by which key stakeholders, the general public, key opinion leaders, or governmental officials accept a venture as appropriate and right, given existing norms and laws. Moreover, their findings reveal a generalized legitimacy granted to the sharing economy by a vast number of stakeholders, although still lacking the consolidation of sociopolitical legitimation [60].

#### 2.4. Research Proposal

By drawing on legitimacy theory, we argue that in the context of the sharing economy, the alignment or conflict of a SEDP with regulations, normative values, and cultural beliefs can have a profound impact on socioeconomic development. We adopted a theoretical lens

based on previous studies of legitimacy [13]. The process of how a SEDP contributes to socioeconomic development was intertwined with three legitimacy elements. As part of this lens, we identified an initial set of three aggregate theoretical dimensions (social and natural environment, legitimacy and socioeconomic development) that were potentially relevant to our inquiry, as shown in Figure 1.



**Figure 1.** The legitimacy of a SEDP for socioeconomic development.

### 3. Methods

We conducted a longitudinal interpretive case study to obtain multiple interpretations of how a SEDP brings about socioeconomic development over a period of time. Interpretive studies attempt to understand phenomena by exploring the meanings based on the assumption that data are socially constructed and value-laden [64,65]. Interpretivist researchers conducting case research strive for validity not from the representativeness of cases in a statistical sense, but on the plausibility and cogency of the overall logical reasoning that is used to describe the results and draw conclusions [66]. Longitudinal case studies have been used by many information system researchers to explore organizational contexts and consequences of IS change [67,68]. Changes are studied over time to understand the context and to examine differences in different phases. In our case, a longitudinal interpretive case study was appropriate to identify what legitimacy elements shaped the SEDP and determine how these elements influenced socioeconomic development.

The SEDP studied here was DiDi. A secondary data analysis was selected to investigate the relationship of DiDi's legitimacy to socioeconomic development in China. Secondary data analysis can transcend the boundaries of time and space, and accumulate a large amount of data [69]. Compared with primary data, secondary data provides greater depth and breadth. Document data can be used to collect the historical record of people's thoughts and actions and compare different data for events with changes in time.

There are three reasons we specifically adopted secondary data analysis for this study. First, there was limited original data, with relevant data scattered among the documentation in company departments, different internal and inter-organizational conferences, industry reports, and media outlets. The types and sources of documents were multiple and unorganized. Conducting this research by collecting data from different sources helped us more comprehensively observe the changes in DiDi. Second, secondary data analysis preserved valuable historical records from the preliminary stages of DiDi in China. This analysis is important to efforts to understand the progression and development of a SEDP. Third, this data approach fitted well with the interpretative stance of our theory that we understand "reality" to be socially constructed and it can be articulated as a result of



human sense-making activities on the part of participants and researchers [70]. This kind of research utilizes various language sources, symbols, and discourses, making it a good fit for secondary data analysis. Besides, when the primary source data in the preliminary stages of DiDi was not abundant in China, secondary data analysis was a practical and economic approach.

### 3.1. Data Collection

The focus of data collection was to investigate discourses related to policies, internal information, and events of DiDi, online car-hailing, the sharing economy, and socioeconomic development from relevant business-related websites and blogs, news coverage, industry conferences, and academic studies, as shown in Table 1. Most of the data collection work was carried out with another co-author, with meetings conducted to discuss the validation of our document collection. Videos were subsequently transcribed and collected documents in Mandarin Chinese were later translated into English. The research period was from June 2012 to May 2017.

**Table 1.** Source of Research Data.

Source	Type	Number of Items	Content
DiDi Press	News	30	Reported by DiDi
World Internet Conference, Entrepreneurs Forum, etc.	Video	16	The development of DiDi
Industry Report	Report	32	Released by DiDi and other authorities on DiDi and the sharing economy for socioeconomic development
China National Knowledge Internet	Newspaper and Journal	352	Search using keywords of DiDi, online car-hailing, and sharing economy for development
Baidu, Google, and Sogou	News	136	Served as Supplementary Materials

### 3.2. Data Analysis

For initial data analysis, at the beginning, we performed data preprocessing to acquire more complete information and more authoritative sources. We tried to eliminate subjective information, such as the results of questionnaires of DiDi's consumers. After filtering the secondary data, we identified major events and cross-examined information from various data sources. We first analyzed the processes of key events for DiDi, such as dates of financing, cooperation, competition, and new businesses in China. When there were inconsistencies between data describing the same events, we triangulated data and findings on the same topic to examine different sources. It became readily apparent that DiDi underwent four distinct phases of development, described in detail below. We then followed the approach suggested by Walsham to categorize and manually code the textual data according to our theoretical framework, as well as the languages and symbols in the data [71]. Next, to further validate our findings, another co-author independently reviewed the data to ensure the validity and reliability of our findings generated from the coding process. The final step was to discuss the findings and analysis with our research group to validate our interpretation of the case. This was performed as an iterative process until we found sufficient evidence to account for representative signs and languages to meet the principles put forward by Klein and Myers [72].

### 3.3. Case Background

DiDi was founded in China in June 2012. On the basis of ICT, Didi is now the world's leading mobile transportation platform in the sharing economy. The platform offers a full

range of app-based transportation options for 493 million consumers across the Asia-Pacific, Latin America, Africa, and Central Asia, including express, premier, hitch, luxe, taxi, bus, designated driving, enterprise solutions, bike sharing, freight, and automobile solutions. These transportation options effectively solve the difficult problem for transportation in urban areas. More than 15 million car owners, drivers, and delivery partners have found flexible work and income opportunities on the DiDi platform, providing more than 10 billion passenger trips a year. DiDi partners with Grab, Lyft, Ola, 99, Taxify, and Careem in a global car-hailing network across more than 4000 cities. DiDi is committed to collaborating with policymakers, the taxi industry, the automobile industry, and the communities to solve the world's transportation, environmental, and employment challenges using localized smart transportation innovations by leveraging its AI capabilities. By continuously improving user experiences and creating greater social value, DiDi continues to build a safe, inclusive, and sustainable mobile transportation ecosystem for cities of future. Although DiDi is highly successful and popular among consumers and drivers, its legitimacy has been questioned by the public since its inception. The main services of DiDi are shown in Table 2.

**Table 2.** Main services of DiDi.

Type of Service	Definition
Taxi service	Collecting taxi drivers with passengers.
Premier service	Offering passengers superior ride experience with high-end vehicles and quality services.
Express service	Providing prearranged and on-demand transportation with quick response and affordable prices, which connect drivers of personal vehicles with passengers.
Hitch service	Ridesharing between drivers of private cars and passengers with similar origin-destination pairings, designed for commuter cost-sharing.

## 4. Findings

### 4.1. Looser Regulatory Requirements for Startups

Table 3 presents the salient dimensions and themes in this phase with the corresponding supporting evidence.

In June 2012, DiDi was founded as an online car-hailing platform. At that time, due to insufficient supply and information asymmetry in Chinese urban areas, taking a taxi was very difficult and the empty-loaded rate was high. Online car-hailing was still in the initial stage. The Ministry of Transportation issued a notice calling for the standardization of online car-hailing services and encouraging the public to use online car-hailing services. Prompted by this, DiDi imitated Yaoyao, a successful online car-hailing platform, to cooperate with taxi companies and discourage use of unlicensed cabs. On 9 September 2012, DiDi released its app to focus on the taxi business in Beijing. DiDi grabbed a market share with 96,103, Yaoyao, Kuaidi, and other online car-hailing platforms.

In the early days of DiDi's app launch, difficulties of passengers in taking a taxi and of drivers in finding a passenger were addressed. However, DiDi suffered from poor responses both from traditional industry and government. Although there were more than 100 taxi companies in Beijing, only one agreed to cooperate with DiDi. The Beijing Traffic Committee proposed regulations that did not consider the price markup mechanism implemented in online car-hailing apps. Shanghai, Shenzhen, and other cities followed this example and similarly put forward relevant regulations. In addition, the initial success of DiDi was slow due to a lack of awareness of the platform, poor app function, and the use of immature technology, all factors that limited the number of DiDi drivers and passengers.

**Table 3.** Dimensions, themes, and data in the phase of looser regulatory requirements for startups.

Dimensions and Second-Order Themes		Representative Data
Social and natural environment	Online car-hailing was in the initial stage.	In Chinese urban areas, taking a taxi was more difficult and the empty-loaded rate was high. The Ministry of Transportation encouraged the public to use online car-hailing service.
	Competitive market	96,103, Yaoyao, Kuaidi, and other online car-hailing platforms began to gain market share.
Legitimacy: Regulative pillar	Complying with local regulations.	Beijing, Shanghai, and Shenzhen established new regulations that did not consider price markup. DiDi accepted the rectification requirements.
Legitimacy: Normative pillar	Having alliances with famous organizations.	DiDi collaborated with taxi companies to discourage unlicensed cabs.
	Standardizing and specializing service process.	DiDi provided training to use the app for taxi drivers and established a credit mechanism for both consumers and drivers.
	Gaining recognition from investment institutions.	In December 2012, DiDi completed a series A round of funding of USD 3 million. In April 2013, DiDi completed a series B round of funding of USD 15 million.
Legitimacy: Cultural–cognitive pillar	Imitating peer companies.	DiDi imitated Yaoyao, a successful online car-hailing platform, to cooperate with tax companies.
	Having an increasing user base.	At the beginning, DiDi had few consumers. Although there were more than 100 taxi companies in Beijing, only one decided to cooperate with DiDi. Many taxi drivers resisted use of the app. Thanks to constant efforts to optimize the app and adding new functions, DiDi’s users grew.
Socioeconomic development	Improving the way people go out and optimizing resource allocation.	With the development of ICT, many online car-hailing platforms appeared. DiDi helped passengers more easily take a taxi and decreased the empty-loaded rate.

To overcome these challenges, DiDi accepted the rectification requirements, and standardized and specialized the app implementation. First, DiDi removed the function of price markup from its app; second, DiDi marketed its services to the public, and encouraged drivers and passengers to use the app; third, DiDi optimized its app function to enable a better user experience. Besides, DiDi conducted training on how to use the app for taxi drivers. Last, DiDi established credit mechanism for both drivers and passengers. Thanks to these measures, DiDi quickly gathered a large number of users.



At this stage, DiDi began to gain acceptance from investment institutions. In December 2012, DiDi completed a series A round of funding of USD 3 million. In April 2013, DiDi completed a series B round of funding of USD 15 million.

#### 4.2. Regulatory Requirements for the Premier Business

Table 4 presents the dimensions and themes that we identified as salient in this phase and the corresponding supporting evidence.

**Table 4.** Dimensions, themes and data in the phase of regulatory requirements for the premier business.

Dimensions and Second-Order Themes		Representative Data
Social and natural environment	Online car-hailing faced many problems and few platforms survived.	After the price war, many platforms collapsed and only few continued to develop. With increasing consumers and new business, there were problems such as driving safety, passenger defaults, and driver refusals. The Ministry of Transportation acknowledged the legitimacy of online car-hailing platforms and selectively supported the premier business.
	Fiercely competitive market.	Because of the price war, tens of platforms for domestic online car-hailing broke down. DiDi competed fiercely with Kuaidi and Uber.
Legitimacy: Regulative pillar	Complying with local regulations.	DiDi eliminated the function of “suggested price hiking” to meet government requirements in Hangzhou. DiDi joined a dispatching platform in Beijing and Shanghai.
Legitimacy: Normative pillar	Establishing industry standard.	In April 2014, in order to improve service quality, DiDi established “Usage and service specifications of online car-hailing” for drivers and consumers.
	Having alliances with famous organizations.	DiDi began to cooperate with Gaode Map, WeChat Pay, Mobile QQ, Ctrip, and Leju. In February 2015, DiDi merged with Kuaidi.
	Gaining recognition from investment institutions.	In January 2014, DiDi completed a series C round of funding of USD 100 million. In December 2014, DiDi completed a series D round of funding of USD 700 million.

Table 4. Cont.

Dimensions and Second-Order Themes		Representative Data
Legitimacy: Cultural–cognitive pillar	Exploring new markets and promoting actively.	DiDi embedded its functions in Wechat, Moblie QQ, and Ctrip, increasing number of users. DiDi gave users subsidies to compete with Kuaidi.
	Having an increasing user base.	DiDi subsidies accelerated growth of drivers and consumers. By May 2014, DiDi had more than 100 million consumers and 1 million drivers.
Socioeconomic development	Improving the way people go out.	The premier business of DiDi attracted many private car owners and medium-to-high end customers.
	Increasing employment and optimizing resource allocation.	The new business increased employment opportunities, improved private car owners' income, and optimized the allocation of social resources.

In this phase, people had access to many online car-hailing platforms and preferred lower price options with lower user loyalty. With a reputation for good service and a large user base acquired in the previous stage, DiDi was recognized by many investment institutions. In January 2014, DiDi completed a series C round of funding of USD 100 million, which was the key to survival in the price war. DiDi used subsidies to accelerate the growth of drivers and consumers. By May 2014, DiDi had more than 100 million consumers and 1 million drivers. In August 2014, DiDi started offering premier service, which attracted many private car owners and medium-to-high end customers. The new business further increased employment opportunities and optimized resource allocation. In December 2014, DiDi completed a series D round of funding of USD 700 million.

After the first industry “shuffle”, tens of platforms broke down due to many problems, with only a few platforms continuing efforts in domestic online car-hailing. With heavy investment, DiDi competed fiercely with Kuaidi and Uber. With increasing users and the new business, additional problems emerged, such as concerns about driving safety, passenger defaults, and driver refusals, which can limit users and disrupt operations. In January 2015, to solve these problems, the Ministry of Transportation recognized the legitimacy of online car-hailing platforms and selectively supported the premier business by prohibiting private cars from participating in the premier business.

DiDi continued to comply with local regulations, such as eliminating “suggested price hiking” in accordance with the government requirements in Hangzhou and joining in a dispatching platform with other taxi companies in Beijing and Shanghai. In April 2014, to improve service quality, DiDi put forward service specifications and instructions for drivers and consumers. DiDi also collaborated with Gaode Map, WeChat Pay, Ctrip, and Leju and embedded its functions in Wechat, Mobile QQ, and Ctrip apps which had a large number of users. In February 2015, DiDi merged with Kuaidi.

#### 4.3. Pressure from the Government

Table 5 presents the dimensions and themes that we found to be salient in this phase and the corresponding supporting evidence.

**Table 5.** Dimensions, themes, and data in the phase of pressure from the government.

Dimensions and Second-Order Themes		Representative Data
Social and natural environment	Online car-hailing was confused as regards to legitimacy.	The express and premier business had a large impact on the taxi industry. In some cities, these services were illegal. The Ministry of Transportation began to ask for opinions on the legitimacy of these businesses.
	Competitive market of express and premier business.	DiDi competed with Uber, Yidao, and Shouqi for the premier and express business.
Legitimacy: Regulative pillar	Complying with local regulations and receiving government approval.	According to the restrictions of the Ministry of Transportation on operation of private cars, DiDi cooperated with a leasing company. DiDi communicated with local management departments. In October 2015, Shanghai Traffic Committee gave DiDi a business license for online car-hailing.
	Collaborating with the local government.	DiDi and the local government released a taxi information service platform in Shanghai and Zhuhai.
Legitimacy: Normative pillar	Establishing industry standard.	After merging with Kuaidi, the new company issued “Online premier business on service management and passenger safety standards”.
	Having alliances with famous organizations.	DiDi built a big data research center of sharing transportation with Beijing Jiaotong University. From June 2015, DiDi collaborated with many famous enterprises such as Beijing Automotive Group Co., Ltd (Beijing, China), Yutong, Shanghai Haibo, and Lyft.
	Taking part in industry conferences.	DiDi participated in several industry conferences, explaining the nature and benefits of online car-hailing service to the government.
	Gaining recognition from investment institutions.	DiDi had investments worth USD 8442 million from Sina Weibo, China Investment Corporation (Beijing, China), Ping An, Apple, and others.
Legitimacy: Cultural-cognitive pillar	Exploring new markets and promoting actively.	DiDi merged with Kuaidi and shared consumers and drivers. DiDi conducted various activities online and offline to improve user loyalty.
	Having an increasing user base.	By January 2016, DiDi had more than 250 million consumers and 14 million drivers.

Table 5. Cont.

Dimensions and Second-Order Themes		Representative Data
Socioeconomic development	Enriching the way people go out.	DiDi's premier, express, hitch, bus, and designated driving business, provided new transportation choices for the public.
	Increasing employment.	DiDi carried out hitch, designated driving, and express business with new suppliers, providing more employment opportunities for private car owners and other people.
	Optimizing resource allocation.	DiDi attracted many top scientists and created an intelligent traffic cloud control system. This was used to rapidly match drivers to passengers with a nationwide success rate of more than 65%, and a success rate of up to 80% for some big cities.

After DiDi merged with Kuaidi in the previous phase, the new company had more capital and energy to develop new businesses from June 2015 to December 2015, including the hitch, bus, designated driving, and express business, providing more options for passengers and more employment opportunities for the public. In this stage, DiDi's drivers and consumers grew significantly and DiDi had several investments worth USD 8442 million. DiDi competed with Uber, Yidao, and Shouqi for the premier and express business and increased its share of the hitch business against Dida, Tiantian, and 51.

DiDi focused on the premier and express business, which had a large impact on the taxi industry and were illegitimate in many cities, such as Shenyang, Beijing, Guangzhou, and Nanjing. The Ministry of Transportation prohibited private cars from participating in the premier and express business and DiDi was questioned and punished. In October 2015, to stimulate the transportation industry, the Ministry of Transportation decided to ask for opinions on the legitimacy of these businesses.

DiDi made several efforts to be legitimate. First, the new company established a new industry standard for online premier business, with specifications for service management and passenger safety, which addressed the lack of industry management standards. Then, DiDi cooperated with a leasing company to make private cars available according to the restrictions of the government. Third, DiDi formed close alliances with the government, universities, and famous enterprises to enhance information exchange and resource sharing, and also took part in important industry conferences to more effectively communicate with the government. DiDi conducted various online and offline activities to promote its services to the public. In October 2015, the Shanghai Traffic Committee gave DiDi a business license for online car-hailing. In July 2016, the Ministry of Transportation officially acknowledged the legitimacy of express and premier business. By January 2016, DiDi had more than 250 million consumers and 14 million drivers.

#### 4.4. Strict Regulatory Requirements for Operating

Table 6 presents the dimensions and themes that we found to be salient in this phase and the corresponding supporting evidence.

At the beginning of this phase, DiDi announced the merger and acquisition of Uber China. DiDi started a car rental and minibus business for consumers interested in self-driving and short trips, and started a bike business in April 2017. DiDi concentrated on its express and premier business, competing with Shouqi and Yidao. DiDi also gained

market share with Tiantian and Dida for its hitch business, and China Auto Rental and iCarsclub for the car rental business. More than 17.5 million drivers worked for DiDi. DiDi had several investments worth USD 5.62 billion, from Foxconn, Bank of Communications, China Merchants Bank, and others.

In the previous phase, the Ministry of Transportation legalized the express and premier business. Local governments of 73 cities then published detailed rules on online car-hailing services. These rules were considered high standards for online car-hailing platforms and quickly reduced the number of available drivers. Although merging of DiDi and Uber increased the user base, subsidies for both passengers and drivers were erased. Thus, DiDi's premier and express business customers decreased due to longer waiting times and higher prices.

**Table 6.** Dimensions, themes and data in the phase of strict regulatory requirements for operating.

Dimensions and Second-Order Themes		Representative Data
Social and natural environment	The express business and premier business became legitimate with regulation.	The Ministry of Transportation issued a policy recognizing the legitimacy of express and premier business. Local governments published detailed rules, which decreased number of drivers.
	Competitive market of express and premier business.	DiDi competed with Shouqi and Yidao for express and premier business, Tiantian and Dida for hitch business, and China Auto Rental and iCarsclub for car rental business.
Legitimacy: Regulative pillar	Complying with local regulations and receiving government approval.	DiDi checked that drivers met requirements of new local regulations. DiDi actively submitted application materials and received business licenses for online car-hailing in 11 cities.
	Collaborating with the local government.	DiDi cooperated with the Ministry of Transportation to develop a traffic information platform.
Legitimacy: Normative pillar	Having alliances with famous organizations.	In August 2016, DiDi announced the acquisition of Uber China. DiDi collaborated with universities and research institutions, such as University of Michigan, Stanford University, Tongji University, and Shenzhen Institute of Beidou Applied Technology.
	Building a research institute.	DiDi built a research institute in Silicon Valley, United States.
	Gaining recognition from investment institutions.	DiDi had several investments worth USD 5.62 billion from Foxconn, Bank of Communications, China Merchants Bank, and others.

**Table 6.** *Cont.*

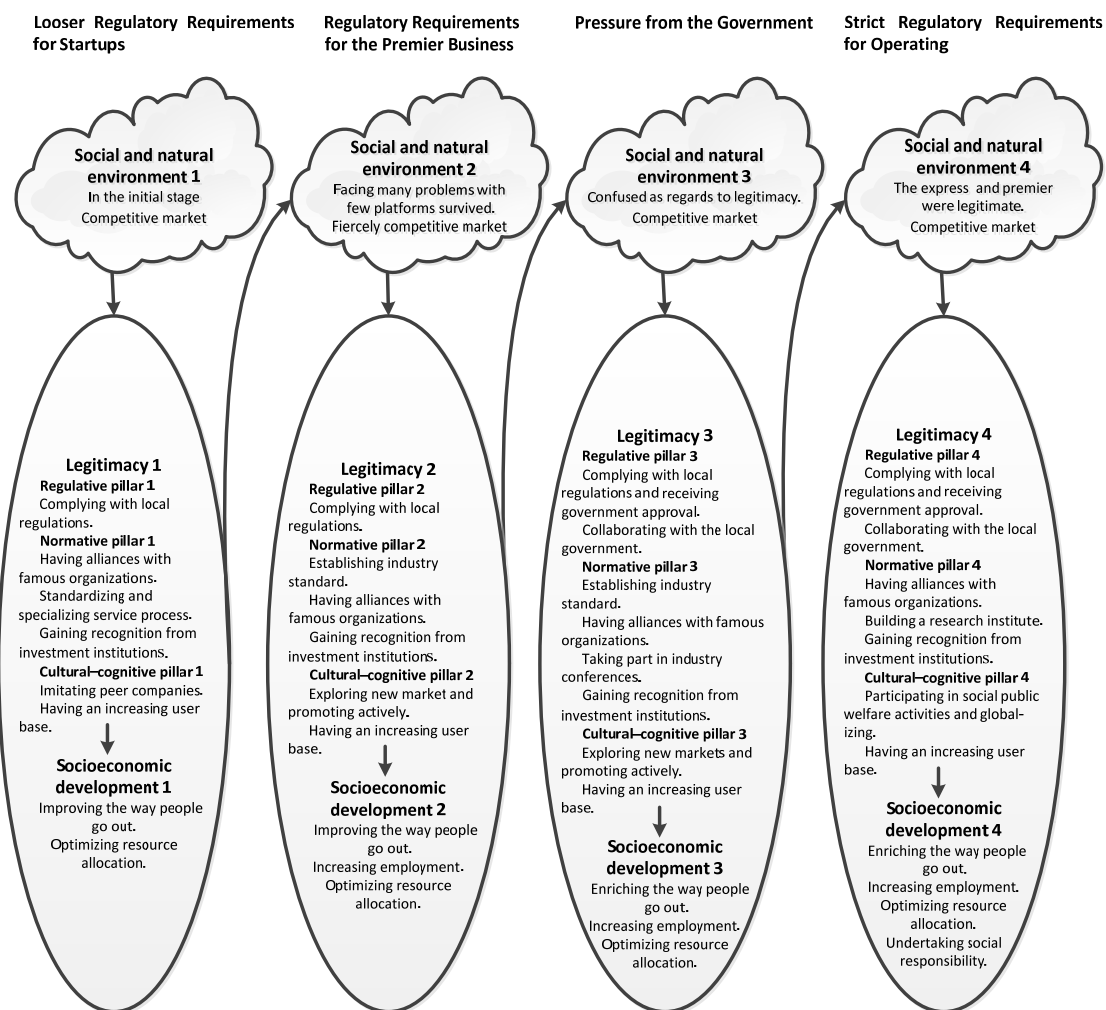
Dimensions and Second-Order Themes		Representative Data
Legitimacy: Cultural–cognitive pillar	Participating in social public welfare activities and globalizing.	DiDi provided services for G20 and B20 summits and participated in social public welfare undertakings and charity. DiDi operated car-hailing services in Brazil.
	Having an increasing user base.	DiDi started a car rental business for self-driving travel and minibus business for short trips with new suppliers and consumers.
	Enriching the way people go out.	DiDi improved access for people to use express, premier, taxi, bus, designated driving, hitch, and car rental services in more than 400 cities in China.
	Increasing employment.	In 2016, more than 17.5 million drivers had a job with good income working for DiDi.
Socioeconomic development	Optimizing resource allocation.	DiDi helped more than 200 taxi companies improve their management models and information systems without charging a fee. DiDi cooperated with departments in the Ministry of Transportation to develop a traffic information platform, which improves intelligent transportation efforts.
	Undertaking social responsibility.	DiDi was authorized by the Ministry of Public Security as an official information channel for missing children. DiDi and Ministry of Human Resources and Social Security worked together on a support plan for laid-off workers with employment assistance.

To cope with these challenges, DiDi first confirmed that drivers met the requirements of new local regulations, actively submitted application materials, and received business licenses for online car-hailing in 11 cities. At the same time, DiDi helped more than 200 taxi companies change their management models and information systems, built a research institute in Silicon Valley, United States, and committed to collaborating with the government, famous universities, and research institutions to study and develop smart transportation innovations. DiDi also provided car-hailing services in Brazil under the 99 brand. Finally, DiDi participated in social public welfare activities, including establishing an official information channel for missing children and creating a support plan for laid-off workers to provide employment assistance.

## 5. Discussion: SEDP Legitimacy Pillars for Socioeconomic Development

Considering our research question, “How do institutional factors influence a SEDP bringing about socioeconomic development?”, our findings reveal that by integrating the different patterns of DiDi across the four distinct phases, a process model of how DiDi’s legitimacy evolved for socioeconomic development (refer to Figure 2) can be inductively derived. We believe that the process of DiDi contributing to socioeconomic development was intertwined with three legitimacy elements.





**Figure 2.** DiDi's legitimacy for socioeconomic development.

In the initial stage, DiDi started its online car-hailing service from the taxi business with looser regulatory requirements. DiDi tried to increase suppliers, consumers, and investments while competing organizations appeared and tried to obtain market share. Influenced by traditional industry, DiDi was weak, with limited protection against risks. Because the regulative pillar must be first for new companies, DiDi paid more attention to compliance with local regulations. For the normative pillar, DiDi cooperated with taxi companies, developed to meet consumers' requirements, and standardized and specialized service processes. DiDi also was recognized by famous investment institutions, increasing its reputation. Improving the third pillar was addressed by imitating successful and powerful peer companies and having an increasing user base. Thus, these combined efforts to improve the three organizational pillars resulted in a stronger platform, which improved the way people go out by solving the difficulties for passengers and optimizing resource allocation by decreasing the empty-loaded rate.

In the next phase, there was a price war for online car-hailing. The subsidies DiDi provided for consumers and taxi drivers contributed to growth of the overall platform and made DiDi popular in the domestic market. The fiercely competitive market destroyed tens of online car-hailing platforms. With heavy investment, DiDi survived, started offering premier business, became a SEDP and successfully competed with Kuaidi and Uber. With respect to the regulative pillar, DiDi continued to conform to local regulations for the premier business. Focusing on normative isomorphism, DiDi released service specifications and instructions to improve service quality. Additionally, DiDi had alliances with many popular platforms and gained recognition from investment institutions. Exploring new

markets, promoting actively and having an increasing user base increased legitimacy in the cultural–cognitive context. These efforts by DiDi led to greater recognition from the government and the public, contributing to improving the way people go out by starting a new business, increasing employment, and optimizing resource allocation by utilizing private cars

In the third phase, DiDi merged with Kuaidi. Through mergers, acquisitions, and capital operation, DiDi's scale increased with new businesses and its core competence enhanced. However, the new businesses, such as the express and premier services that DiDi concentrated on, resulted in new problems. Under pressure from the government, DiDi invested in efforts to make the express and premier business legitimate. To do this, after mergers, the new platform complied with local regulations, received government approval, and collaborated with the local government to improve the regulative element. Then, improving the normative element, DiDi established a new industry standard, had alliances with universities and established companies, participated in several industry conferences, and gained recognition from well-known investment institutions. Third, the cultural–cognitive element was again addressed by exploring new markets and promoting actively both online and offline, and having an increasing user base. In this phase, DiDi had more capital and energy to develop with government approval. DiDi enriched the way people go out by starting several new businesses, increased employment, and optimized resource allocation by creating intelligent system with top scientists.

After that phase, DiDi gradually became more mature, with increasing shareholders, investment agencies, suppliers, and consumers. DiDi began to operate with the more complete support and recognition of the government, increasing its competitiveness and ability to resist external risk. After its merger and acquisition with Uber China, DiDi began to look at the market overseas. DiDi became known as a safe, open, and sustainable SEDP. Because the Ministry of Transportation acknowledged the legitimacy of express and premier business in the previous stage, DiDi maintained its regulative pillar with strict requirements for operating. In terms of its normative pillar, DiDi worked with a growing alliance of online car-hailing industry players and established a transportation research institute to address challenges of transportation, environment, and employment. To enhance the cultural–cognitive pillar, DiDi participated in social public welfare activities. DiDi acquired Uber China and had alliances with important institutions with a larger user base, which contributed to opening of overseas markets. DiDi continued to enrich the way people go out, increasing employment, optimizing resource allocation by helping taxi companies, creating intelligent systems with government, and undertaking social responsibility.

In different stages, DiDi's legitimacy varied, evolved, and resulted in different types of socioeconomic development. The government may restrict, encourage, or steer sharing economy business, by developing a series of regulations and policies [73]. Initially, as the government moved to support and regulate the industry, DiDi tried to develop and increase its legitimacy based on the three pillars. The regulative pillar required complying with local regulations, receiving government approval, and collaborating with the local government; the normative pillar improved by having alliances with famous organizations, standardizing and specializing service processes, establishing industry standards, gaining recognition from investment institutions, taking part in industry conferences, and building a research institute; imitating peer companies, having an increasing user base, exploring new markets, promoting actively, participating in social public welfare activities, and globalizing contributed to the cultural–cognitive pillar. Significant efforts made by platforms to address all three aspects are required for a healthy and robust platform, which contributes to socioeconomic development includes improving and enriching the way people go out, optimizing resource allocation, increasing employment, and undertaking social responsibility.

While our analysis focuses on the institutional pillars for socioeconomic development, we also found the dynamic technological development of DiDi promoted social and economic development. The initial vision of DiDi' app effectively solved the problems

passengers faced in taking a taxi. Then, DiDi started the premier business connecting the private car owners and passengers. Third, DiDi developed more new businesses with higher technological requirements and provided more options for the public. Last, DiDi cooperated with local government, universities, research institutions, and famous enterprises, and built a research institute to create localized smart transportation innovations. We find technology can promote success and lead to development in a SEDP setting with institutional theory, responding to the need to explore ICT's role in a developmental process described by Walsham and Sahay [34].

## 6. Conclusions

### 6.1. Theoretical Implications

This study makes several important theoretical contributions to understanding a SEDP for socioeconomic development from the perspective of legitimacy.

First, this study underscores the need to address the legitimacy of a SEDP for socioeconomic development. There are limitations of current SEDP research which has mainly concentrated on the positive and negative effects [6,7,15–18], users' perception and behavioral intention [19–27], and the business model [5,28–30]. We have demonstrated the importance of institutional pillars in shaping a SEDP for socioeconomic development. Drawing on institutional theory, this study provides a more comprehensive understanding and evidence to show that a SEDP for socioeconomic development is subject to effects of regulatory pressures, normative values, and social–cognitive belief. The findings from our case study reveal that modified legitimacy across all three institutional pillars benefits a healthy and robust platform for socioeconomic development.

Second, the analysis for this study illustrates technology can bring success and lead to socioeconomic development based on institutional legitimacy theory in a SEDP setting. Previous studies on ICTs for development revealed that technological diffusion may not necessarily lead to development according to typical indexes [33,39,40]. Walsham and Sahay call for the exploration of ICT's role in a more precisely defined developmental process using institutional theory and development economics [34]. The results of this study indicate that institutional pillars of a SEDP based on ICT can contribute to socioeconomic development include improving and enriching the way people go out, optimizing resource allocation, increasing employment, and undertaking social responsibility.

Third, our process-oriented and historical research design contributes to the extant theoretical literature on legitimacy, where most studies use cross-sectional methodologies to confirm the significance of institutional forces. Longitudinal studies are particularly important for the study of institutional forces, as pressures may differ for different phases [56]. Although previous studies have identified several antecedents on the legitimacy of an organization and IS adoption [52,74–78], few studies utilize a process perspective. We used a longitudinal interpretative case study to characterize how the legitimacy of a SEDP varied and evolved. In this case, the institutional forces were different in early and later stages of DiDi, with different implications for DiDi's development. Specifically, in the first three phases, DiDi encountered many more problems due to insufficient legitimacy than in the fourth phase.

### 6.2. Practical Implications

There are several practical implications of this study. First, our findings show that managers in other peer platforms need to identify the dynamic regulative, normative and cultural–cognitive pillars, which can present significant conflicts and become the most significant barrier to development, and be ready to react appropriately given these variances in the context of SEDP.

In terms of regulative pillar, complying with local regulations and receiving government approval are the most essential, when much ambiguity is surrounding new SEDPs' legitimacy. Managers need to communicate with the government in a more positive way; for example, reaching out to the local government to explain the nature of new services,

which is consistent with that of Cannon et al. [11]. Then, collaborating with the local government can contribute to having more interactions with policy makers.

As far as the normative pillar is concerned, gaining recognition from investment institutions comes first and can determine the ability of new SEDPs to survive. If a SEDP has alliances with famous organizations such as successful enterprises, universities, and research institutions, twice as much can be accomplished with half the effort. Because services in the sharing economy are non-standardized, non-professional, and differentiated, managers should spare no efforts to enhance the service quality, and standardize and specialize service processes. Taking part in industry conferences can help new SEDPs receive more recognition from other stakeholders.

Imitating peer companies can be the first step of new SEDPs to improve the cultural–cognitive pillar, which is in line with findings of previous studies indicating successful companies conform well with the cultural–cognitive beliefs embedded in the institutional environment of the sharing economy [57,58]. Managers should make great efforts to have an increasing user base and promote actively, such as by providing lower prices and giving subsidies to new consumers. Participating in social public welfare activities shows that a successful SEDP has more will to give back to society.

Second, our findings show that government policy makers are one of the most important stakeholders when the legitimacy issues of new SEDPs are not clear, which is consistent with findings of Navis and Glynn [61]. Policy makers in the sharing economy should give more chances to managers to show that new SEDPs really comply with local regulations. In addition, governments should cooperate with the industry associations to hold professional industry conferences, which new SEDPs can join with other SEDPs and stakeholders. Furthermore, as new SEDPs may promote socioeconomic development, policy makers can cooperate with researchers in investigations such as questionnaires for the public, identifying which kinds of socioeconomic developments new SEDPs contribute to.

### 6.3. Limitations and Future Research

We also see limitations of this research. Continuing longitudinal research will further enrich our understanding of how institutional forces shape a SEDP for socioeconomic development, especially concerning the impact of the COVID pandemic and other issues on the dark sides of a SEDP. Furthermore, our setting is the online car-hailing industry, in which key institutional elements play significant roles. It is important to apply institutional theory to other industries in a sharing economy setting, and examine the extent to which managers consider these variances of SEDPs for socioeconomic development.

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