Special Issue: Open innovation in the Service Industries (2019, January 8th)

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Open the special issue with selection of long abstracts of 17 paper: January 15th, 2019
Full paper submission open (17 papers + SOItmC 2019 papers): June 1st, 2019
Deadline for full paper submission: October, 31th, 2019.
Special issue publication: January 2020

Open Innovation research has been grown up as dominant innovation paradigm for the last 20 in Large firm, and SMEs together even though open innovation research was started from manufacturing industries such as semi-conductor, computer, or pharmaceutical years by Henry Chesbrough. But, as the servicialization of production become popular, service open innovation is expanded not to service industry but also to production industry. Chesbrough researched at the open innovation of entertainment industry, music industry, and food industry in 2011. After that, a lot of open innovation research was done on service industry individually and separately.

So, at SOItmC 2019 with the theme "Second IT revolution and dynamic open innovation; From Smart City, Autonomous Car, Intelligent Robot, and Block Chain to Sharing Economy", we want to organize special issue of SIJ of SOItmC 2019 with the topic, "Open Innovation in Service Industry from Second It Revolution to Service Industry".

This special issue invites papers from a range of disciplines and fields of specialty research related (but not limited) to the following topics:

- Servicilization of production in the 4th industrial revolution and open innovation

- Restraints service open innovation
- Entertainment service open innovation
- IT based service open innovation
- Sharing economy related service open innovation
- Smart City service open innovation
- Autonomous Car service open innovation
- Intelligent Robot Service open innovation
- Block Chain Service open innovation
- Diverse new service open innovations in the 4th industrial revolution

Submission instructions

All professors and researchers who present their papers at SOItmC 2019 are invited to submit their full paper from July 1st, 2019 in addition to 17 papers which were selected from SOItmC 2019 special issue long abstracts 220.

The deadline for full paper submission is **October 31st, 2019** for standard peer review.

Full instructions for authors are available at: http://www.tandfonline.com/action/authorSubmission?journalCode=fsij20&page=instructions

Publication for this special issue is January-March 2020.

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1.

An entrepreneurship and tech-transfer tool in silico Combining an AI system on management advice   with an agent-based simulation of innovation networks

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Abstract

This paper introduces and critically discusses a coupled model for computational innovation management support.

One part consists of a knowledge-based system (KBS): this is a decision-support tool for young high-tech firms in the start-up phase of their business. The KBS is based on Artificial Intelligence (AI) techniques providing expert consultancy knowledge of the type tech-transfer organisations would usually offer.

The other part consists of an agent-based model (ABM) of innovation networks, the SKIN model. SKIN is a multi-agent model of innovation networks representing knowledge and market dynamics in and between the agents. Each agent tries to improve its innovation performance and its sales by improving its knowledge base through adaptation to user needs, incremental or radical learning, and co-operation and networking with other agents.

The coupled model, a KBS-informed SKIN, is directly policy and management-relevant: it provides an entrepreneurship and tech-transfer tool in silico, which simulates the emergence and future of companies in high-tech clusters while advising them on the go on innovation management issues.

Key Literature Reviews (About 3~5 papers):

Garcia, R. and Jager, W. (eds.) (2011): Agent-Based Modeling of Innovation Diffusion (Special Issue).

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Ram, Sundaresan and Ram, Sudha (1996): Validation of Expert Systems for Innovation Management: Issues, Methodolog and empirical Assessment. Journal of Product Innovation Management 13/1: 53-68.

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Lendel V. and Varmus M. (2010): The Expert System as a Proposal for Creating Innovative Strategy. Journal of Competitiveness 2: 47-57.

Walker, Warren & Lempert, Robert & Kwakkel, Jan. (2013). Deep Uncertainty.

In: Gass, Saul I., and Michael C. Fu (Eds.) Encyclopedia of Operations Research and Management Science: 395-402.   Watts, C. and Gilbert, N. (2014): Simulating Innovation. Computer-based Tools for Rethinking Innovation. Cheltenham:

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Design/ Methodology/ Approach:

Coupling a Knowledge-based System (KBS) with an Agent-based Model (ABM)

ABM will be a tailored version of the SKIN model (Simulating Knowledge Dynamics in Innovation Networks; http://cress.soc.surrey.ac.uk/skin/)

KBS will build on existing models (cf. key literature reviews) and new empirical research (primary

and secondary data) on techtransfer offices and innovation management providers

Model coupling will be realised by new middleware solutions

With the coupled model, simulation experiments will be set up for addressing questions such as:

what happens if the ABM agents are advised by the KBS?

will more „intelligent" agents decide on behaviour more appropriate for innovation success?

What are the scales and differences between random decision making, ABM decision making   and AI-based decision making in innovation management?

What types of uncertainty (e.g. lack of knowledge, intrinsic variability, ambiguity) will prevail in each of these modes of decision making?

How does the coupling method affect overall uncertainty?

(Expected) Findings/Results:

Results from simulation experiments with the coupled model can help innovation managers and entrepreneurs to cope with the challenges of complexity, to understand the dynamics of innovation, and to identify potential access points for successful interventions.

Simulation results can inform about likely future effects of managerial interventions; some of these effects can be surprising and counter-intuitive. New managerial knowledge is generated: complex contexts are made available and accessible via experimentation. Simulations can help and practice how to deal with them.

With the new simulation methodologies counterfactual analysis is possible: they offer a benchmark including measurable indicators for impact assessment, appraisal and ex-ante evaluation of managerial interventions.

Simulation is a tool for „changing history", i.e. testing the impact of past interventions by sensitivity analysis, an   d for „looking into the future" by exploring what-if questions.

For innovation managers, asking what-if questions (ex-ante evaluation) is an option that is normally not easily available in the management world. They can use scenario modelling as a worksite for their job.

Experiments can be used to give an indication of the likely effect of a wide variety of management measures:

empirical 'un-observables', such as knowledge flows in innovation or learning of agents, can be measured.

Research limitations/ Implications:

Calibration and validation issues demarcate the limitations of our research:

The coupled model will get into contact with empirical data in at least three ways:

quantitative and qualitative empirical data is used to calibrate the model;

data is processed in simulation experiments for producing particular scenarios (sensitivity analyses, ex-ante evaluation)

Simulations produce artificial data, which need to be analysed and interpreted, and which need to be validated against empirical data

The quality of the coupled model and its results will depend on the access to data.

Utility for practitioners might be a further issue demarcating limitations:

For the stakeholders to trust the model (and its results), they needed to

understand the mechanisms represented in the model

feel that they have had an input into the design of the agent rules and characteristics

agree that the model outcomes are sufficiently close to what they observed actually happening

Keywords: innovation management, knowledge-based systems, artificial intelligence, agent-based models, simulation experiments

Reference:

Ahrweiler, P., Pyka, A. and N. Gilbert (2011): A New Model for University-Industry Links in Knowledge-Based Economies. Journal of Product Innovation Management 28: 218–235.

Ahrweiler, P. (2017): Agent-based Simulation for Science, Technology, and Innovation Policy. Scientometrics 110/1: 391-415.

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of knowledge-intensive Industries. Computational & Mathematical Organization Theory 17/1: 59–76. Frank, D. and Ahrweiler, P. (2018): The Future of Artificial Intelligence – Policy Research Perspectives.

In: B. Wolff (ed.): Debating the Future of Artificial Intelligence. Mercator Science Policy Programme: Brussels. Leydesdorff, L. and P. Ahrweiler (2014): In Search of a Network Theory of Innovations - Relations, Positions,

and Perspectives. Journal of the American Society for Information Science and Technology 65(11), 2359–2374

Schilperoord (2016) 'Start-ups when and where? Using the SKIN platform for modelling the birth of

new firms'.   In: Ahrweiler P, Gilbert N, Pyka A (eds) Joining Complexity Science and Social Simulation for Innovation Policy.   Agent-based modelling using the SKIN platform. Cambridge Scholars Publishing, UK

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Networks. In: Gilbert, N., Ahrweiler, P. and A. Pyka (eds.): Simulating Knowledge Dynamics in Innovation Networks, Springer: Heidelberg/New York, 185–198.

The Role of Large Scale Scientific Facility in Innovation Networks: Using Social Network Analysis and Agent-based Model for Case study of Shang hai Zhangjiang Science Park

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Abstract

Purpose/ Research Question:

As a part of China's innovation-driven development strategy, Shanghai is now building a science, technology and innovation hub with global influence. Zhangjiang Hi-Tech Park, actually Zhangjiang science city now, is the core district of Shanghai STI hub. To achieve this goal, one of the steps for China and Shanghai government is to construct a serial of large-scale research facilities(LRFs), mainly to enhance basic research and carry on initial scientific discovery/invention.

Actually, these LRFs are also very important to promote the local innovation capability via knowledge spill-ove r, talents training and technology transfer according to international experience of CERN, ESS, J-PARC etc.

However, the relationship between LRFs and business/industry haven't be well proved quantitatively.

The question is, to what extent does the LRFs improve local even global industry, business and innovation. This paper intends to use social network analysis to describe the evolution of innovation networks with LRFs in Shanghai Zhangjiang science city, and also use agent-based model to simulate the innovation performance of the actors like universities, institutes, spinoffs, start-up companies in related innovation networks with or without these LSFs.

Key Literature Reviews (About 3~5 papers):

Petra Ahrweiler, Andreas Pyka, Nigel Gilbert (2011) applied the agent-based SKIN model to university-industry links. The experiments compare innovation networks with and without university agents. The simulation confirms that university-industry links improve the conditions for innovation diffusion and enhance collaborative arrangements in innovation networks.

Alexandre Dias & Sérgio Kannebley aimed to understand the relationship between the scientific and technological collaboration networks of inventors in different types of research infrastructures. The results revealed that the characteristics of the infrastructures are associated to the researchers' collaboration strategies, which in turn are related not only to the levels but also to their ability to articulate scientific and technological production.

Seyedeh Zahra Mostafavi Kashani(2012) examined what factors are behind a successful establishment of European Pallation Source in Lund, as a growth engine for the entire region in long term. ESS will bring economic growth in the region by producing technological innovations and spinoffs within foremost materials and life sciences but to say exactly what it will be, is not possible and it will be much dependent on how good the regional players are at exploiting the opportunities that the facility would bring. ESS would employ several high educated and top scientists, thus relatively highly paid scientific and technical workers will stay in the region. It can also bring new startup companies from spinoffs research. These will naturally have an impact on the local and regional economy. But overall, for the region to benefit as large as possible, preparation of local innovation system and need of ESS integration with regional innovation system is essential.

Chen Guang(2014) reviewed the literature about empirical study on the economic and social impact of large-sized scientific facilities, and then presents a theoretical framework for investigating this topic, which will contribute to evaluate the performance of public funds input in these large-sized scientific facilities.

ZHANG Lingling (2018) Took the spallation neutron source as an example, according to the research results of UK Harwell Campus, Japan Proton Accelerator Research Complex, Lawrence Berkeley National Laboratory and British Cella Energy Company. It proposes the financing modes of "two industrialization paths and one principle" for large scientific facilities. Aiming at the specific needs of funds in different paths and stages of the industrialization of spallation neutron sources, the government funded capital and non-governmental capital will cooperate with each other to jointly promote the development of related industries in large scientific facilities.

Design/ Methodology/ Approach: Contents

Choose Shanghai Synchrotron Radiation Facility (上海海光源) as a case study

Collect paper and patent data and cooperation cases of Shanghai Synchrotron Radiation Facility

Using Social Network Analysis tools (e.g. Ucinet, Gephi, Pajek) to see the internal(intra/inter-departmental, intra/inter-disciplinary) and external (cooperation with universities, research organizations, industry partner s MNE/SME etc.) networks structure and also the evolution of network structure.

Discuss limitations of SNA approach and demands for ABM.

Discuss successful policy interventions in technology transfer, cooperation and talents/knowledge flow.

Ask what if questions: What if technology transfer model change; What if cooperation mechanism change; What if spin-off or start-up strategy change.

Using Agent-based model/simulation (e.g. SKIN model, Netlogo)

Set a baseline using the previous data

Compare for the different strategy.

See the conclusion of simulation

(Expected) Findings/Results: Contents

The technology transfer promoting policy, attracting talents policy and government funding strategy will lead to more innovation outcome.

Research limitations/ Implications: Contents

The small quantity of innovation output will weaken the persuasion of mechanism(spin-offs, technology licens e, cooperation strategy)

Keywords: Innovation Network, Large-scale Research Facility, Technology transfer, Social Analysis Network, Agent-Based Simulation

Reference:

Ahrweiler P, Pyka A , Gilbert N . A New Model for University-Industry Links in Knowledge-Based Economies[J]. Journal of Product Innovation Management, 2011, 28(2):218-235.

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张玲玲, 赵明辉, 王俏, et al. 依托大大科学装置的产业融资模式及对策研究*——以散裂中子子源为例例[J]. 科技促进发 展, 2018(Z1).

Developing Structured On-the-Job Training for Local Trainers for Industrial Human Resource Development in Myanmar

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Abstract

Purpose/ Research Question: The present study aims at analyzing the process toward as well as the achievement and challenge in developing structured on-the-job training (S-OJT) of local trainers in management subjects in the case of Myanmar-Japan Center for Human Resource Development (MJC). More specifically, we investigate what and how the local trainers learn from whom with what time schedule, all through the process from working with the Japanese experts at the early stage to teaching the subjects independently after completing the training of trainers (ToT), especially on how can they be in a systematic way while customized to each trainer.

Key Literature Reviews (About 3~5 papers): OJT is training in the work setting, not in a lecture room or any other off-the-job setting. In particular, S-OJT is OJT implemented systematically with clear learning goals as well as the targets related to the knowledge/skills contents, their levels and required time for completion, in order to overcome such criticism on OJT as being unstructured and so ineffective consequently. Along with this line of thoughts, Jacobs (2003) defined S-OJT as the planned process of having an experienced employee train a novice employee on a unit of work at or near the actual work setting. Overall, the implementers expect to exploit the advantages of OJT and off-JT at the same time, even though they may also have a risk of suffering from the disadvantages of both methods. Because of the considerable interest from researchers, the design, implementation and delivery of S-OJT programs have been studied (Ahadi & Jacobs, 2017).

Although S-OJT has been studied by researchers, ToT has not been analyzed in the literature concerned. On the other hand, according to a systematic review of ToT regarding employees in medical and social welfare sectors, S-OJT has not been included as a main topic (Pearce et al., 2012). Judging from the key literature review, the specific focus on ToT through S-OJT cannot be found in the literature, though it may be extensively implemented in such cases that the number of ToT

participants are limited, tacit rather than explicit knowledge is important and customized specification of the training is required.

Design/ Methodology/ Approach: MJC has provided local executives and employees with management related knowledge and skills by their training courses. It has been making efforts on training of local trainers through OJT while currently they face the challenge of how to make the OJT structured and more effectively develop lop local trainers in order to make their activities sustainable even after less supports from Japanese government. In fact, its ToT meets the conditions mentioned above and therefore it is an appropriate case. The subjects in this study are local trainers who are the full-time lecturers in local national university and have the experiences of studying in Japan for their graduate degrees. The experience in Japan is not compulsory but preferred, as at the early stage, they will learn from Japanese experts in terms of the subject in charge, for which local trainers' understanding management in Japan may help their development. Although they have taught similar subjects at their universities, teaching styles tend to be different each other. For one thing, the contents are more practical. For the other, the original contents were developed for the workplaces in Japan. That means the local trainers need to make necessary adjustments for the course contents, though they were already with modification during the process of implementation in other Asian countries while the Japanese experts themselves try to make adjustment by themselves in advance and together with local trainers in OJT.

Since so far the OJT has not been extensively structured, we should start from describing the process of local trainer development based on the interview with the trainers. Basically we try to list up all the related activities of local trainers. So as to make clear the degree of systemization of OJT, it should be identified that they learn what, how, when and from whom. For example, 'what' can be tentatively shown from the Japanese experts in charge as master trainers for ToT and then further consideration is made by the local trainers. In the case of 'from whom', learning can be not only from the Japanese experts, but others including the course manager and peer local trainers can be the source of learning. In the process of specifying the components above, we should also obtain the evaluation of the process by the parties concerned including the local trainers.

(Expected) Findings/Results: We expect the OJT for the local trainers is considerably structured, but there will be still rooms for further improvement, especially how to relate what they learn and how they learn.

Research limitations/ Implications: Since the present study has an explorative nature and takes a case study method with descriptive explanations, we cannot identify the effect of the S-OJT for local trainers on their outcomes in a rigorous way, even for this particular case. However, the results can be utilized to improve monitoring and evaluation methods of local trainer development process, especially on how to achieve a good balance between common and customized practices.

Keywords: Structured on-the-job training, training of trainers; local trainers

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Ahadi, S. and Jacobs, R. L. (2017), A review of the literature on structured on-the-job training and directions for future research, *Human Resource Development Review*, 16(4): 323-349.

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Pearce, J., Mann, M. K., Jones, C., van Buschbach, S., Olff, M., and Bisson, J. I., (2012), The most effective way of delivering a train - the - trainers program: A systematic review, *Journal of Continuing Education in the Health Professions*, 32(3): 215-226.

<center>4.</center>

Diversity in Open Innovation of Restaurant Industry
<center>- Comparative analysis of restaurants in Naples Italy, Gyeongju Korea, and North Korean restaurant in Phnom Penh, Cambodia</center>

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<center>KyungBae Park</center>

1.   Research Question

Like other industry, food firms including restaurants rely on external scientific and technological knowledge, or customer knowledge or experiments to support their own innovation. By the way, firms in the food industry have several characteristics that distinguish them from firms in other industries; 1) They operate in mature or low-technology sector ; 2) Food innovation are often initially developed in smaller companies or restaurants ; 3) Innovation in food sectors is normally incremental than radical;

4) But patented food technologies are mainly from a few multinational companies(Acosta, Coronado, & Ferrándiz, 2013). Even though, for big food firms such as Lindt or Kraft, open innovation strategies are one of several candidates of strategies, for small restaurants or food firms, open innovation is absolutely required strategy to choose and develop(Fryer & Versteeg, 2008; Van de Vrande, De Jong, Vanhaverbeke, & De Rochemont, 2009). But, Lindt which is one of global top chocolate manufacturer wished to remain the core capabilities and internal and private, and adopted a 'controlled open approach' to innovation so as to exploit its potential benefits without radically modifying their business model (Valentina Lazzarotti & Raffaella Manzini, 2013). When Kraft developed the melt-proof chocolate bars, pursued open innovation with well-constructed intermediation organization to accelerate the innovation cycle (Wielens, 2013).

But when we think of our service business such as restaurant, the role of customer in the innovation process is not partial but full as co-creation because there is a tension between standardization, which makes providing the service more cost-effective for the supplier, and customization, which more closely matches the customer's needs but may require different solutions for each customer (H. Chesbrough, 2010, p. 54). In the knowledge-based economy, knowledge advantages of scale with "non-rivalrous knowledge" can continue to accumulate endogenously, and create a powerful economic growth which drives open service innovation of restaurant(H. Chesbrough, 2010; Romer, 1986, 1990).

We want to know the truth of open innovation in the success of restaurants. Our research questions are as follows.

Does an open innovation of restaurant is the rational strategy for a small restaurant to invite customers continuously?

What kind of open innovation strategies does a small restaurant use?

2. Literature Review, Hypothesis, and Research Framework.

2.1. Literature Review with hypothesis

Consumer-driven food and beverage innovation, which designs products to meet consumer needs, can be arrived at success by making consumers part of the innovation process (Kemp, 2013). Consumer- centric company culture such as good communication around consumer issues, custom research at all stages of the new product development process, or data basing qualitative and quantitative findings, is essential for the success of innovation of food or restaurant firms(Moskowitz, Beckley, & Resurreccion, 2012). Co-creation of value with consumers as an innovation strategy in the food and beverage industry is popular in not only small firms but also big firms such as the case of Molson Coors' "talking can' (M Garcia Martinez, 2013a). Co-creation with consumers hence offers food & drink industry an opportunity to add value and extricate themselves from commodity sectors where the lowest cost provider holds sway(Garcia Martinez, Lazzarotti, Manzini, & Sánchez García, 2014). But open innovation in food and drink industry should be considered as a kind of organized innovation including internal context, architecture of collaboration, and external context altogether(Christensen, 2006).

In food industry, vertical integration and networks play important roles at innovation activity (Karantininis, Sauer, & Furtan, 2010). The vertical integrated collaborators model, so to say vertical integration models corresponds to companies that open their whole innovation funnel but only to contributions coming from a few types of partners(typically, suppliers and/or customers)(Lazzarotti & Manzini, 2009). Although there is still limited empirical evidence regarding open innovation strategies in the food industry, 3 different of open innovation models of food are identified such as 1) The Sharing is Winning model which is focused on start-ups and individual inventors, 2) The food-machinery framework which is focused on open food supply chain for the food machinery firm, 3) The Want, Find ,Get, Mange (WFGM) model which is focused on the open food supply chain among supplier, food company, and consumer(Bigliardi & Galati, 2013). In addition, a growing number of chain actors, together with difficulties in single-handedly, meeting the heterogeneous needs of customers, end-users , seed firms, farmers, packers, retailers, technology supplier, and legislators and so on, is driving force of the dynamics of open innovation in the food industry to open up to external sources of knowledge in search of successful new products and technologies(Sarkar & Costa, 2008).
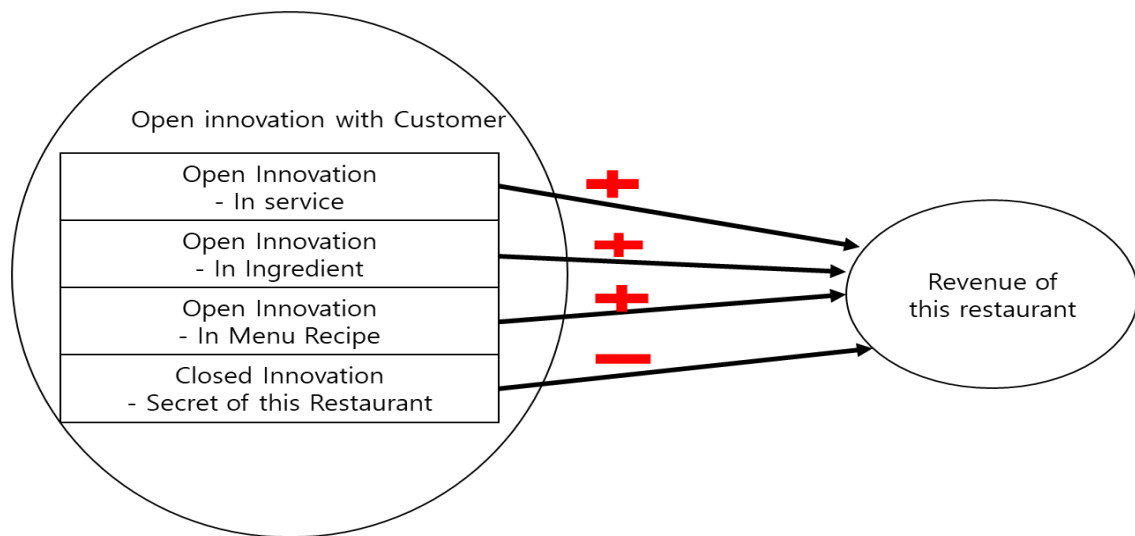
Figure 1. Hypothesis

From literatures, we set up figure 1 to answer the first research question.

Hypothesis: Open innovation of restaurant in service providing to customer, developing new ingredients, and developing new menu or new recipe with customers will increase the revenue of the restaurant. But closed innovation of restaurant will decrease the revenue of restaurant.

But if we see the food industry from the sustainable food consumption, consumers have become increasingly estranged from the production of their food and, despite the recent recurrence of regional food and new trends like slow food and organic produce, consumer knowledge of seasonality and regional supply has withered (Reisch, Eberle, & Lorek, 2013). But with out-of home-consumption now accounts for a significant and growing proportion of European food intake, at the same time, food consumption is increasingly furnished with symbolic meaning and hedonic experience, and "social food" has become ever more significant in combatting the perils of an individualized society(Bes-Rastrollo et al., 2010; Reisch et al., 2013; Vandevijvere, Lachat, Kolsteren, & Van Oyen, 2009).

The success of Italy food industry and a lots of Italian restaurants can be traced back to the diverse and dynamic open innovations in food and agriculture industries of Italy from Greece, Rome imperial to First World war (Parasecoli, 2014). In service industry including restaurant, market-based co-operation and use of market-based information was positively related to the novelty of the innovation introduced by the firm, but co-operation with competitors(co-opetition) was not positively related to the novelty of the innovation introduced by the firm (Mention, 2011). In the service industry, the higher the firm's level of innovation success is, the more intensive its recourse to cooperation with universities, or customer-provider technology acquainting license (Janeiro, Proença, & da Conceição Gonçalves, 2013; Suh & Kim, 2012). So to say, restaurant industry normally does not use universities as innovation sources. Right now a lot of new business models are motivated from culture and arts which have deep relationship with restaurants, or foods(Schiuma &

Lerro, 2017). Even though many studies point several potentially valuable sources of knowledge such as customers, suppliers, competitors or universities et al. in a firm's environment, customers have been identified as a particularly promising source of knowledge, especially when their demand is anticipator for broader market segments (Sofka & Grimpe, 2010; Von Hippel, 2005). More commonly, firms including restaurant play a central role on creating and organizing innovation communities which is well organized with online platform or not(West & Lakhani, 2008). We can create customer's experience through a services value web in which there is an iterative process that includes customer engagement, service co-creation, elicit tacit knowledge, design experience points, and service offering(H. W. Chesbrough, 2011). The cultural aspects of food such as Aroma let us pay attention at customer more and more (James, 2004).

In fact, SMEs engage in many open innovation primarily for market-related motives such as meeting customer demands, or keeping up with competitors, and have increasingly adopted such practices recently without any difference between manufacturing and service industries with the arrival of the 4th industrial revolution (Lee et al., 2018; Van de Vrande et al., 2009). Chez. Panisse, the best restaurant in America by Gourmet magazine in 2001, as one of the top 50 restaurants in the world by Restaurant magazine from 2002 to 2008, and given a Michelin star, the hallmark of fine dining, throughout the history, Waters and her team had built a local and now global ec0-system using an "open Innovation" strategy with stakeholders such as suppliers, alumni chef and staff, food writers, and most of all customers(H. Chesbrough, Kim, & Agogino, 2014). Especially open kitchen concept motivated global top special menu and recipe, and arrived at menu for just one customer, for example "A Menu for Celilia for her ninetieth birthday" in addition with the building relationships with suppliers and farmers, the accumulation of the relationship with customers for Chef Alumni system, the Chez Panisse Foundation, and collaborations with food educators (Kim, 2013). in 1970s by Alice Waters have been motivated the open innovation of Chex Panisse (Waters, 2009). All experience points in a restaurant such as 1) make reservation 2) Arrive at restaurant; 3) Ask for table; 4) Go to table; 5) Receive menu; 6) Order drinks and food; 7) Eat ; 8) Order bill; 9) Pay; 10) Visit restroom; 11) Leave, are part of the design for service open innovation(H. Chesbrough, 2010, p. 59). Service open innovation designs for the food and beverage service business can be motivated from interaction with customers in several values such as appealing value like restaurant image, reflective value like character of the space, or social responsibility value like social message of visible materials (Nam, Kim, & Carnie, 2018).

The objective of consumer-driven innovation is to create the right product to fulfil consumer needs and expectation because consumers themselves are core parts of food and beverage industry innovation(Kemp, 2013) . So to say, co-creation of value with consumers as an innovation strategy in the fast-paced or turbulent markets, or industries such as food and beverage industry is essential because co-operating with so-called lead users has been described as an important source of innovation for firms (M Garcia Martinez, 2013a; Von Hippel, 2005). Like long term co-innovation partnership, restaurant open innovation can consider the key factors in all the phases of open innovation such as initiation, partner selection, formation, implementation, and evaluation (Tepic,

Omta, Fortuin, & Saris, 2013). Like Mars' global open innovation structure can be diverse according to food, Chocolate, drinks, Petcare, or Gum and sugar, open innovation strategy or structure of restaurant can be diverse in additon to the individual case of Heinz open innovation framework. (V Lazzarotti & R Manzini, 2013; M Garcia Martinez, 2013b). Models of adoption of open innovation within the food, beverage, or restaurant are diverse with a lot of service open innovation design elements from supplier of food ingredients, menu or recipe, to dynamic and specific service industry(Bigliardi, Galati, & Technology, 2013; Garcia Martinez et al., 2014; Marian Garcia Martinez, 2013)

2.2.   **Research Framework for open innovation analysis of restaurant**

	Food Ingredient	Menu Recipe	Restaurant Service
Platform Open Innovation	POII Platform Open Innovation In Food Ingredient	POIR Platform Open Innovation In Menu Recipe	POIS Platform Open Innovation In Restaurant Service
Open Innovation	OII Open Innovation In Food Ingredient	OIR Open Innovation In Menu Recipe	OIS Open Innovation In Restaurant Service
Closed Innovation	CII Closed Innovation In Food Ingredient	CIR Closed Innovation In Menu Recipe	CIS Closed Innovation In Restaurant Service

Figure 2. Research Framework for the analysis of restaurant open innovation.

According to literatures food or beverage open innovation at restaurant, occurs from food ingredient, menu or recipe, to restaurant service in diverse levels such as closed innovation by themselves, or open innovation with mainly with customer, or platform open innovation which is a kind of open innovation organization in restaurant like Figure 2.

So, we will analyze open innovation of target restaurants from this framework about food ingredient, menu recipe, and restaurant service. By analyzing the open innovation of restaurants, we will answer the hypothesis and research questions.

2.3 Research Methods and Scope

We analyze the open innovation of target restaurants by half structured questionnaire based intensive interviews, and participatory seeing. We interviewed Chefs, or directing managers because questionnaire is good for them to answer.

Table 1. Half Structured questionnaire for intensive interviews of restaurants.

Number	Qualitative Answer	Quantitate Answer

		Closed Innovation Open Innovation				
		1	2	3	4	5
1	How does your restaurant develop new menu and recipe? ( )					
2	How does your restaurant develop new ingredients? ( )					
3	How does your restaurant develop new service( )					
4.	Would youplease introduce one example ofinnovation your restaurants? in ( )					

Additionally, we stayed at the restaurants as customer before interviewing at least one or 2 hours for our participation seeing of this restaurants. Sometime during this participation seeing, we asked customers, Chef, or serving managers of the restaurant about our half structured questionnaire.

We selected restaurants which were evaluated as very successful by customers and themselves at the regions. We selected 3 different group of restaurants which have more than 2 times customers compared to neighborhood similar size restaurant. First, we selected 4 restaurants in Naples, and Capri in Italy, Second, we select one Korean Susi restaurant, Gampo Susi restaurant among 12 Susi restaurants at Gampo Susi restaurants town in Gyeongju South Korea. Third, we selected one North Korea restaurant, Pyongyong Cold Noodle restaurant in Phnom Penh, Cambodia among 7 North Korea restaurants.

3.   Open Innovation of Naples Restaurants.

First,
2018, October 26th 2-4 pm Ristorante Barbarrossa at Capri Interviewee: Gaetano Bonatelli
New Menu or Recipe Development; the diverse requirements of customers from world wide , all the year. (OIR; open innovation in menu and Recipe)
New ingredients; Sea food, Fish, Fruits et al., all ingredients of foods are from in Capri island and near Naples on time. (OII; open innovation in food ingredient)
New service development; Table carton change every new customer, several time checks of acceptance of food, providing additional service, decoration of the tables of restaurants, serving of breed et al. We try to meet requirements of customers at the global top levels at every moment. (OIS; open innovation in service by deep interface with customer)

Second,

2018, October 26th 8-10 pm Elizabes hotel restaurant at Sorento Interviewee: Fabio Cirillo

He started as cooker from 24th, , and is working for 15th. He was aexecutive chef of Gordon Ramsey restaurants at Fortevllage, and now the first chef of Elizabes hotel restaurant.

New menu or recipe development; Every day menu and recipe is changed. When receive order, or before cooking, he tries to ask what the customer ate the day before, and ask in directly the food taste of the customer. By these process, he develops very creative and characteristic menu or recipe which meets the taste of the customer every moment. During eating and after eating, he asked the acceptance of the menu from the customer, and develop new concrete menu or recipe, or change the old new as new style.

(OIR; Open innovation in menu and recipe)

New food ingredient; From Farm of Elizabes hotel, one Ache area, Chef takes on the season vegetables every day. If customer require Carabola which is not at the farm, Chef takes it from near farm , and try to consider the ingredient at the hotel farm. And Chef made red wine and white wine from the hotel farm grapes, and preserve at the hotel farm winery, and serving according to the customer requirement. He used the Turkey, beef, and seafood ingredients from Naples through trust having producer union. When the Chef receives order from customer in advance, he ask the taste or preference of customer and chooses the food ingredients from them.

(OII; Open innovation in food ingredient)

Customers of Elezes hotels are from not just Sorrento or Naples, Italy but also worldwide such as Germany, France, or Korea because of the fantastic view at which we can see the all the seaside of Sorrento. This restaurant can serve for diverse parties such as Wedding party, family party, local community party, or Academic meeting with collaboration of flower decoration companies, and active new structure of tables. Everyday morning, table structure is changed according to customers. According to the direct or indirect requirements of customers, table structure, flower decoration, food structure of every morning is changed.

(OIS; open innovation restaurant service).

Third

2018, October 27th 1-3 pm, Hotel Miramare restaurant

Interviewee; Paffaele Di Maio, the manager of Hotel Miramare

New menu or recipe; We try to develop new menu or recipe which can give implication to customer in addition to meet the individual requirements of customers one by one. We ask the acceptance of food to customer and feedback it definitely. So same the menu pasta will be different in detail according to the taste of customer.

(OIR: open innovation in recipe)

Food ingredient; All ingredients are from Naples, Chef grow up at Naples. So he understood all ingredients at the seasons and the context of the ingredients. In addition, Chef tries to creative mixing of diverse ingredients from Naples to meet new requirement of customer from worldwide.

The mixing of ingredients can move the invention to new open innovation in food in this restaurant. For example, the mixing of seafood and Mustard made new innovation with the feedback from customers.

(OII: open innovation in ingredient)

Restaurant service; Through enjoying diverse exhibitions, or painting galleries, in addition to meet very strange and diverse requirements and comments from Italy and global customers, creative and fantastic decorations of restaurant are possible. For example, siting and sleeping chair, real tree style decorations, all the glass wall to the beach from restaurant, or wood made beach chair at the veranda are the examples. Beautiful dish, cup, table cover, and the structure of food dishes are all from books, conference and global customers' taste. We do not provide water but the service which provide the water with the motivating of the emotion of customers.

(OIS; open innovation in restaurant service)

Fourth

2018, October 27th 6.30-8.30 pm

Le Bistort Bordeaux, at the downtown of the Naples

Interviewee; Simone Pedreui Carpi, the directing manager, serenorfolini@libero.it

Menu and recipe; We always pay attention to customers and around them in addition to the changing trends of market. If you pay attention to the changing taste of customer, and changing situation of market, we can make new menu, and recipe successfully. For examples are as follows.

Fili di teve

Srereghetti with potatoes, garlic, oil and pepper. (OIR; open innovation of recipe)

Food Ingredient; The core of food ingredient is to use the food ingredient in Naples and near here, as season ingredients. The nature ingredients should be used at the nature. For example, Raffaello which is a red and small radish can be eaten deliciously just with salt, and olive.

(OII; open innovation in food ingredient)

Restaurant service; We just pay attention to the moment requirement of customer. In addition, we always pay attention to the related markets such as dishes, tables, or covers to update and innovation the restaurant service.

(OIS; open innovation in restaurant service)

4.   Open Innovation of Gampo Susi Restaurant of Gyeongju, South Korea

We visited 7 times between 2013 January- 2014 December this restaurant, and found of the special platform open innovation. And we interviewed HeJin Park, the CEO of this restaurant on November 9th 2018 at the restaurant first time. We will interview 3 more times this restaurant about open innovation strategy.

Menu and Recipe <CIR; Closed innovation in menu and recipe> Food Ingredient <POII; Platform open innovation of ingredient> Restaurant service <OIS; open innovation in service>

5.	Open Innovation of PyangYang Cold Noodle Restaurant of North Korea in Phnom Penh, Cambodia

We will visit more than 4 times from December 11th -24th 2018 to interview this restaurant.
Menu and Recipe <OIR; Open innovation in menu and recipe???> Food Ingredient<CII: Closed innovation in food ingredient> Restaurant service <POIS; Platform open innovation of service>

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How social enterprise deliver social innovation through co-creation process

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Abstract

This study aims to investigate how social innovation being achieved throughout co-creation activities that various participants and social enterprises may have been involved. Existing social innovation theory mainly revealed the conceptual fulfilling process, and also discussed about how government policies or NPO conduct their social innovation under institutional context (Alvord, et al.,2004；Hartley, 2005；Bates,2012) However, few research has left any eye on the how social innovation been implemented and realized through existing mechanism or strategies (Chesbrough, 2006；Voorberg, 2015；Chesbrough & Di Minin, 2014). On the other hand, research have unfolded that co-creation activities would help social enterprise to enhance their social impact by collaborating with customers, suppliers and public citizens (Voorberg, 2015), which may finally become a facilitation of social innovation. Thus, this study tries to explore how co-creation contributes to generate social innovation under the context of Taiwanese social enterprise, and how social network have formed throughout the co-creation process that have contribute to social innovation.

Research Background

Recently, social innovation has drawn public's attention by generating beneficial impact on solving various social issues, such as eco-friendly and humanitarian activities (Mulgan, 2006；Phillips, et al., 2015). Certain social innovation activities have been conducted under the operation of institution like governments, NPO organizations and Social enterprise, and they have conducted significant contribution on social changes (Defourny & Nyssens, 2010；Chesbrough, 2006；Chesbrough & Di Minin, 2014). By holding cross-institutional projects, building up participants' network and conduct social issue platform, social innovation is often be implicated under co-creation and co-production of private organization as well as social publics (Schaltegger, 2011；Lettice & Parekh, 2010). Thus, our research aims to investigate how social enterprise deliver social innovation through the co-creation mechanism. And it is expected to enrich the field of both social enterprise and social innovation by giving an empirical evidence of how co-creation happen to fulfill social innovation.

Key Literature Reviews

Social innovation has become a novel approach to solve social issues in the contemporary societies (European Commission 2010a; Howaldt & Schwarz 2010; Unceta, Castro-Spila, & García Fronti, 2016). In practical, an innovative microfinance organization named "Grameen

bank" has helped improving Bangladesh local economy in a significant way, which has become a representative example of conducting social innovation (Cajaiba-Santana, 2014; Chesbrough & Di Minin, 2014). With an emerging trend that hundreds of social enterprises have boomed up in the past decades, Taiwan have incubated a social power that aims to improve various kind of social issue, which also results in the facilitation of social innovation. (Hsieh & Yi, 2018; Hsu, Ososkie, & Huang, 2009). And throughout the social innovation process, diversified interest parties will involve in social campaign or activities and try to contribute social innovation, which would finally generate a social network that targeting at fulfilling social welfare and benefit. (Franz, Hochgerner, & Howaldt, 2012; Dees, 2017; Leadbeater, 2007) Moreover, research argued that social innovation would happen along with the mechanism of co-creation and co-production from collaboration of various social communities (Voorberg, Bekkers, & Tummers, 2015; Mulgan, 2006). With the co-creation and co-production from various social communities, social parties are able to enhance their social impact and create social value (Windrum, et al., 2016). Thus, we identify our research question as "how social enterprise delivered social innovation through co-creation process". Our research aims to reveal how co-creation activities contribute to social innovation under the context of Taiwanese social enterprise. And it is expected to enrich the field of both social enterprise and social innovation by giving an empirical evidence of how co-creation happen to fulfill social innovation.

Methodology

To investigate how social enterprise develops social innovation through co-creation and co-production approach, we adopted a grounded theory approach and deduct whether there is any factors that help social enterprise to generate social innovation (Charmaz & Belgrave, 2007; Glaser & Strauss, 2017). Research data will be collected through semi-constructed interviews with the social enterprise's founders, managers and employees. Throughout the interviews, we expected to know further about how social enterprise conduct co-creation activities under the alliance with various social community, and how co-creation activities transfer into social innovation. Other data, such as industry-related reports, stakeholders' websites, and archival data are also collected, to reveal the process of delivering social innovation under the promotion of social co-creation activities.

Expected Findings and Implications

Our findings would contribute to the theory of social innovation through its investigation under a different context. And our outcome could provide an ideal map on how social communities contribute to social innovation under their common co-creation activities. Furthermore, we may illustrate the formation of social network that have been participated in the delivery process of social co-creation, and how they act with each other to conduct co-creation activities. To sum up, our research is expected to enrich the field of social innovation and also social enterprise, and is expected to provide an empirical example that may help social enterprise to maximum the efficiency of co-creation activities.

KEYWORDS:
Social Innovation, Co-creation, social network, Social enterprise, Public sector innovation

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6.

Achieving Sustainability in the Construction Supervision Process

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Purpose: A critical attention should be drawn to the construction supervision process to ensure safe, compliant and sustainable construction in the environment where various actions are taken to reduce the administrative burden aiming to stimulate the growth and development of the construction industry. The effectiveness of the construction supervision process is vital to risk prevention and compliance of the construction process with the set requirements which, as a result, leads to the protection of public interests and needs. There are different construction supervision practices, techniques and approaches worldwide, however, this sphere is not harmonized, it lacks a common approach. The scientific aim of the research is to identify the main principles and elements within the construction supervision process to achieve the sustainability of this process. The results of the survey are significant to the development of the construction supervision process in order to apply development principles to a building's life cycle.

Key Literature Reviews: In the recent years, the construction industry has faced major challenges in ensuring a balance between environmental, social and economic aspects and the manner in which the construction process is realized. [1]. It is now critical to seek new approaches and apply creative and innovative solutions to the improvement of the construction process to be competitive and sustainable on the marketplace [2]. Digitalization, automatization and use of new technologies in the construction processes are becoming an integral part of the construction operations. Realization of an open innovation strategy is used to adopt new ideas or technologies in the construction companies in order to ensure sustainable development [3]. The role of the construction supervision process is to ensure public safety through proactive identification of non-compliances at the construction sites. In 2017, during the control supervision of public building construction, various

types of noncompliance were determined in 37 per cent of cases. In order to ensure the quality and safety of the construction operations, the role of supervision has been considerably increased [4]. Supervision of the construction process should ensure that objective of sustainable development is taken into account in all phases of construction [5]. There are different objects and elements of sustainability in different phases of the construction process [6] that should be evaluated during the supervision process in order to translate the principles of sustainable development to the construction process [7].

Design/ Methodology/ Approach: The research is focused on sustainability principles in the construction supervision process. The theoretical framework of the concept of sustainability in the construction supervision process is analyzed on the basis of literature survey. The objectives, principles and elements of sustainable construction in various stages of the construction process are to identify. In addition to the theoretical analysis of research in this area, the construction supervision process was analyzed using Value Stream Mapping. This method helps to visualize activities taken throughout the construction supervision process and its added value to reach the goal – sustainable construction.

Findings/Results: The evaluation and analysis of the role of supervision in the construction field provide a general notion of supervision process as a strategically important activity in helping to ensure public safety and protect the interests of society by proactively determining non-compliances at the construction sites. The research showed a possibility of integrating sustainability elements into the construction supervision process. The objectives, principles and elements of sustainable construction in various stages of the construction process are identified. The construction supervision process plays an important role in the evaluation of the stages and activities of the construction supervision process and their added value to reach sustainable construction. This represents the current and future added value for the construction industry and for the whole society. Future studies should focus on the identification of items for each of these dimensions in order to construct reliable, valid measures for such a system. In the framework of limited resources there is a need for an effective model to improve the efficiency of the approach to the construction supervision process and the switch from separate element control to a process-based approach that can be the right solution in this environment.

Research limitations/ Implications: Research is focused on the supervision process of public building construction in Latvia.

Keywords: construction, construction supervision, control, sustainability, safety.

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Identification of opportunities for innovations through collecting problems from citizens

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Abstract

This paper is going to present the findings of a research conducted with the aim to explore the feasibility of collecting problems from citizens in order to identify new valuable ideas of really useful innovative products and services. The data were collected in the autumn semester of 2018 in Riga Technical University (RTU) by Master's students under the supervision of the authors. Over 500 respondents shared their views on the problems which to their minds are worth solving; they also provided their visions of how these problems could be solved and what kind of products or services could be created in the result. The principle of this survey for getting citizen-driven innovation ideas was "One citizen – one problem". This was to ensure a bottom-up direction for the promotion of meaningful innovations based on the building of an open channel for collaboration between consumers-to-be and university with the further intention to create a bank of problems and innovation ideas for companies.

Purpose/ Research Question: What kinds of innovative product and service ideas can be created from the problems highlighted by citizens?

Key Literature Reviews Prospective innovations begin as problems or ideas and flow along the action pathway getting developed through stages such as opportunity recognition, development, realization, and learning (O'Sullivan & Lawrence, 2009). The very first stage which is called also as opportunity identification (Baron, 2006), opportunity creation (Sarasvathy et al., 2003) and opportunity development (Sanz-Velasco, 2006) is crucial as it drives, gives meaning and directs all the processes for creating new economic values. Should the opportunity identification be a top-down or bottom-up process is becoming a

topical issue being discussed by scholars (Saari, et al., 2015). Citizens-driven approach to the collection of innovation ideas, which was realized in RTU and analysed in this paper, could be considered as a pre-phase of design thinking (designing user-centred things that people actually want and need oppose to just making people want things through advertising and packaging (Robbins, 2018)). The involvement of citizens in the process of initiating innovation ideas through collecting problems from them could be a complementary procedure to customers' needs analysis. The latter is usually conducted via observing them for developing the rich ethnographic portraits of their behaviour and identification of themes and patterns of their unmet or under-served needs (Robbins, 2018). Citizens-driven approach to collecting ideas for innovative solutions and identification of consumers' needs might be in line with the contemporary tendency of servitization. As revealed in this research, along with the ideas of tangible products, the citizens have put forward also unexpected ideas for services; will this reposition the tangibility / intangibility continuum towards the intangibility side (Tauqeer & Bang, 2018) is going to be one of the aspects of this research. Such a practice of collecting problems from ordinary people will make a ground for building citizens - university collaboration channel for creating innovative business ideas to be transferred to companies, thus forming the basics for inbound open innovation (Joueid & Coenders, 2018).

(About 3~5 papers)

Design/ Methodology/ Approach: As the survey was elaborated with the aim to collect problems which could bring to innovative products and services, in the very beginning of the questionnaire there was a very short illustration of how a solution of a problem may end with a useful product which could help people in everyday use. That was needed in order to avoid getting well known common problems formulated in a very generalized manner like: high prices, law salaries, corruption, polluted environment, etc. as such formulations do not provide a due focus and they don't give food for entrepreneurial and innovative mind. After piloting the questionnaire with the Master's students, two versions of it - in Latvian and English were created and sent to corresponding respondents living in different countries. Each student had to provide ten respondents explaining to them the main purpose of the research beforehand. That was important for ensuring high quality data. The demographic data were related to the respondents' gender, profession, age, country and status. The conceptual statements and questions were: "Please describe a problem which you think should be solved", "Please, evaluate how topical the solution of

this problem is for the society", "Which field of human life is this problem related to?", "Who is affected by this problem? (you can mention more than one option)", "Have you seen any solution of this problem before?", "If your answer is 'Yes' to the above question, please, describe what solution it is", "In your opinion what should be done to solve the problem?" "What product, service or idea could be created in the result of the solution of the problem? Please describe."

(Expected) Findings/Results: After the qualitative content analysis of the respondents' texts combined with statistical analysis of the quantitative data it is expected to systemize the problems collected in the course of the survey, comparing different demographic groups with each other and putting forward some worthwhile ideas for entrepreneurs and innovative businesses. This analysis is to improve the methodology for the further cycles of similar research in order to transform it into a regular research practice for creating an open e-platform of innovative ideas for entrepreneurs and business community.

Research limitations/ Implications: The data were collected mainly from Latvia, Finland, India, Azerbaijan, Sri-Lanka and Pakistan – the native countries of the Master's students. The respondents were mainly of ages between 16 and 35 which might show the specific accent of the problems identified by that demographic group. In the further cycles of the research more respondents of other ages and regions should be involved.

Keywords: meaningful innovation, inbound open innovation, citizen-driven innovative ideas, citizens-university collaboration, topical problems, citizens, bottom up needs analysis, open e-platform for innovative ideas.

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The innovation ecosystem formation mechanism of intellectual property operation based on Internet

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Abstract

Purpose/ Research Question: In the context of the increasing demand for transferring scientific and technological achievements, the development of China's intellectual property operation platform has gradually become the focus of attention of the academic and practical circles. From the perspective of innovation ecological theory, this paper is mainly to explore the formation mechanism of innovative ecosystem which comes from the intellectual property operation platform based on the Internet.

Key Literature Reviews (About 3~5 papers): Scholars have carried out a lot of theoretical exploration on the transformation of scientific and technological achievements and the operation of intellectual property rights. The SECI model proposed by Nonaka and Takeuchi (1995) describes the characteristics of knowledge and location, and can be well used to explain the process of knowledge production and transformation in the operation of intellectual property rights. Under this framework, explicit knowledge and implicit knowledge transform each other under certain conditions (Nonaka et al., 2009). Therefore, universities, governments and enterprises with knowledge attributes can jointly form a three-helix innovation ecosystem in which knowledge creation, exchange, sharing and transfer are carried out (Carayannis et al., 2009). Ma (2011) et al.

studied interdisciplinary and interregional knowledge innovation based on Internet platforms, and pointed out that regional innovation ability could be improved through resource sharing. Against the background of the development of Internet technology, various types of Internet operation platforms have emerged at the right moment. For example, Didi taxi platform has successfully developed from a virtual platform to a platform ecosystem, and on the basis of value accumulation, the whole business is gradually on the right track (Gao et al., 2018; Ma et al., 2018).

Design/ Methodology/ Approach: Further the study is performed through the three propositions in terms of the interaction of participants, collaborative development model and value co-creation. These three propositions are as follows: (1) Proposition 1. *There is a complex and nonlinear mechanism among the participants in the platform*. (2) Proposition 2. *Under the influence of non-complex linear interaction, the participants of the intellectual property operation platform form an innovation ecosystem through the four-helix and produce the four-helix coordination mechanism*. (3) Proposition 3. *During the operation of the platform's innovative ecosystem, the role of the Internet promotes information sharing and exchange, and forms a value creation mechanism through the matching of supply and demand information*. Besides in this study, this paper adopts the analysis method of single-embedded case, and selects the China-University Intellectual Property Operation Platform as a sample for theoretical exploration and interpretation of the above three propositions.

(Expected) Findings/Results: It can be found that the relationships among all participants in the platform is mainly revealed by the products or services provided by each participant. Thus the innovation ecosystem is formed by the interaction of various participants, and more development resources can be obtained through the system. In addition, the Internet platform promotes the information sharing and exchange, and the value co-creation model is formed through matching the supply and demand information.

Research limitations/ Implications: The disadvantages of this study are as follows. First, the sample selection is limited, and only a single case analysis is conducted in this study. Although it is representative to some extent, the information that can be reflected is still limited in general. Therefore, more representative IP platforms can be investigated and empirical analysis can be carried out. Second, the impact platform corresponding to the other potential impact factor for the formation of innovation ecosystem remains to be seen, although in this study based on the building of the three hierarchy theory attempts to explain the formation mechanism, but as a result of this mechanism is a complicated system, not merely to contain the above these three factors in our study, so can also be more factors case study the formation of innovation ecosystem.

Keywords: Intellectual Property Operation, Innovative Ecosystem, Quadruple Helix, Platform Organization Theory, Digital Innovation, Value Co-creation

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Measuring National Innovative Force From An Innovation Value Chain Perspective

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Abstract

Purpose/ Research Question:

In recent years the national innovation measurement appears, and develops a new perspective to measure the national innovation systems. While measuring national innovation performance is critical for researchers, policy-makers and industries, its current research are still in some exist views, for example the input-output perspective. However, this kind of perspective pays more attention to the overall input and output of national innovation, but not orienting towards simple results and considering less about different countries with different features. It may cause the problem that the policy-makers focus on the input part which can be easily controlled, and it also unfair to the countries which have the equal output and less input compared with some developed innovation countries. There is a valuable question that if we need to rethink the role of input in the entire innovation activities. Furthermore, innovation measurement is difficult as the simple indicators may make the policy-makers miss the key information, whereas the complicated ones may confuse them. So a set of succinct results-oriented indicators can be critical to not only provide the information that relates to the innovation at the national level, but also help the policy-makers to figure out the solutions for improving the innovation competitiveness. Thus, this study proposes a new composite index for evaluating national innovation activities, i.e. National Innovative Force (NIF). The NIF focuses on the innovation value transfer process from science to technology and industry innovation, reflecting different development stages of different countries.

Key Literature Reviews (About 3~5 papers):

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Design/ Methodology/ Approach:

In this paper, in order to avoid the fluctuation of score caused by weight selection, we use PCA to get the principal component from the original data.

The PCA methods based on optimization criterion to choose weight and identify the key innovation indicators by dimension reduction. PCA is used on its own, and it can reduce the dimensionality of a data set in which there are a large number of interrelated variables.

In order to analyze the national innovative force, we select 34 countries. Different countries have different characteristic, countries like China, United States and India have a similar large population, but the development stage are different, also the European countries like Luxembourg and Switzerland, the population and GDP compared with China are lower, but they have a high GDP per capita. So it is reasonable to measure national innovative force from strength indicators and effectiveness indicators.

(Expected) Findings/Results:

From an overall perspective, there is a certain correlation between clustering results and national innovative force rankings, same clustering countries have a similar innovation performance. And the countries with large innovation output and basic support scale (usually large aggregate economic) have a higher score in national innovative strength; while small developed countries with less innovation output and basic support have a lower score. Opposite of this, compared with large countries, there are national innovative effectiveness advantages between small developed countries since they have a higher unit resource ownership of innovation output and basic support. The national innovative force weakened the unit output and the total output advantages, which can

comprehensive comparison between large and small countries.

Research limitations/ Implications:

The main limitations of this research are (1) the indicators we choose are based on the database, and some innovation activities may not be measured by these indicators which can lead to some biases; (2) both PCA method and EW method are one of the way to measure innovation activities, the intrinsic relationship between indicators cannot be easily identified by these methods; (3) the way to deal with missing data is easy and without considering the actual economic and social conditions. So next stage we try to find some new indicators which can better reflect visible and invisible innovation activities and try some new methods to deal with missing values as well as calculate the composite index, and better describe the real national innovative force of the countries.

The Study on relationship between digital marketing and Industrial brand reputation

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Short Abstract

The aim of this paper is to understand what impacts Industrial Purchasing Organization perception about choosing a partner from various information perceived from different digital channels posted by i ndustrial Supplier, that data and communication quality shall be well managed prior to being revealed or announced to digital channels. There are many literature contributed by other researchers and scholars regarding applying digital channel as the marketing strategy for industries. However, there is a gap that Industrial Suppliers might eager to know what kind of data content, service, and information shall be provided to their potential customers, target customers, mainly Industrial Purchasing Organization, by different digital channels, appropriately and efficiently. This study has a closer look in to what information perceived during communication process has positive affection to become perception about the brand reputation, and to impact Industrial Purchasing Organization preference and purchasing intention. Our   findings are that hypotheses predicated product quality perception, e-communication quality, and e-WOM have an influence on the brand reputation.

Expanded abstract

Purpose/ Research Question:

Aim of the paper is to understand what impacts Industrial Purchasing Organization perception about choosing a partner from various information perceived from different digital channels posted by Industrial supplier, that data and communication quality shall be well managed prior to be revealed or announced to digital channels. There are many literature contributed by other researchers and scholars regarding to apply digital channel as the marketing strategy for industries. However, there is a gap that Industrial suppliers might be eager to know what kind of data content, service, and information shall be provided to their potential customers, target customers, mainly Industrial Purchasing Organization, by different digital channels, appropriately and efficiently. Thus, the main research is to explore what relationship between digital marketing and the industrial brand reputation that Industrial Supplier can take reference, for the marketing strategies planning for image of brand reputation increasing positively, as to gain higher attraction and trust from Industrial Purchasing Organization, to enhance a long-term cooperation relationship. The research questions are as followings:

(1) What product related information on the digital channels is important Industrial Purchasing?
(2) What extent of information quality revealed has influence to the brand reputation of the Industrial Supplier?

Key Literature Reviews (About 3~5 papers):

According to Glynn (2012), product quality performance affected brand reputation and brand loyalty. And, also Loureiro & Kastenholz (2011) claimed that reputation is primary contributors of perceived product quality carrying a brand name, with customer expectation of consistent quality provision over time. For Industrial Purchasing Organization, to purchase from a well-known brand may reduce the risk of purchasing based on reliable reputation from cooperation experience in the product as well as service quality. Industrial Supplier focus on marketing their company's reputation as well as the brand is not merely enhance the image awareness (Dobni & Zinkhan, 1990) such as company logo and name in Industrial Purchasing Organization's mind, rather than that, is to establish the long term cooperation image which is invisible but linked to the basic product and service quality represented as brand reputation (Dan & Allen, 1997). As previous research, brand reputation of the consumers' perception includes three points:

(1) The importance level of product quality and service the supplier concern.

For Industrial business, such importance is prior to a symbol or any slogan. While Industrial Supplier promote own brand image, concentration with invisible reputation, such as offering the specified consultation service from initial stage (pre-sell service) of the project until the product is assembled (after-sales service), to be distinguished from competitors. Such strategy for Industrial Supplier is to extend before and after the sales process, that represents a determination of service importance level increasing strategy and implement by well management of the organization due to more manpower input. However, an image of differential and been distinguished conception from other competitors will be generated like the brand association by Industrial Purchasing Organization, as the perception about the company's reputation specified connected to the brand image (Czinkota,Kaufmann, & Basile, 2014).

(2) Brand culture connected to the organization's vision and corporate social responsibility

Information revealed to promote the brand culture and vision is easily to be posted publicly through digital channels and advertisement, but hardly to be perceived successfully by the Industrial Purchasing Organization. A long term management of marketing strategy integrated of description about company profile including culture and vision with the important item that is real activities: corporate social responsibility (CSR), is the direction Industrial Supplier should implement, especially target to create a difference of the brand reputation from competitors (Czinkota et al. 2014). From the previous study documented that the organizations brand reputation has been positively affected by their CSR (Khojastehpour & Johns, 2014) that brand performance is enhanced as well as the equity is increased (Lai, Chiu, Yang, & Pai, 2010).

CSR scope is wide, and not only for large or famous organization. Industrial Supplier may start from taking care of the neighborhood. For Industrial Supplier, to be the sponsor and take place various activities are suggested, such as encourage awards of study or research or innovation idea for students in the major subject field, or taking care disadvantage people nearby the organization, and so on. All the CSR affection is invisible perception, which leads positive word-of-mouth that creates valuable brand reputation.

(3) Brand reputation enhanced by Industry-Academic Collaboration

Industry-Academic Collaboration between the industry and the education is popular for industries in Taiwan. For industrial organizations, such program benefits a lot for both industry and the Academic institution. While Industrial Supplier cooperates with the Academic institution by offering job opportunities to students, the cooperation may be extended to be real product development consisted by both practical technical and theoretical knowledge exchange. Such cooperation may enhance a good research and development team work of the Industrial Supplier. The other hand of human capital development for Industrial Supplier, students who have working experience with the organization may be the prior hired after their graduation. For students and the schools, training together with studying program is able to enhance students' abilities and knowledge prior to their start working after graduation (Ankrah & Al-Tabbaa, 2015).

Brand reputation is the key perception about the Industrial Supplier according to Industrial Purchasing Organization, that has influence to purchasing process and decision making (Gomes et al. 2014), and impacted by dimensions includes product quality perception, product related information quality and e-communications quality perceived from various digital channels, and e-WOM perceived from different social networks as discussion of literature review in this chapter. What performance of the Industrial Supplier brand reputation is connected to the perception Industrial Purchasing Organization perceive? As a marketing strategy is consisted of complex factors applied to different digital channels to enforce brand awareness to public, this study is gathered previous remarkable researches in industrial marketing, and industrial purchasing contributed by researchers since decades, and also new topics of marketing tools built on technologies in recent years. Critical points for Industrial Supplier are concerning affections in between and how to find proper solutions for their organizations. Clearly, new technologies bring us not only convenience but also efficiency to people's life obviously, change communication system totally, and impact business and economic environment rapidly. A remarkable era created by technologies is not predicable and maybe not happened so far, however, we can do is following new technologies, holding innovations, enjoying changes in this rapid new business & industrial environment.

A brief literature review shows the study route from marketing tools, industrial purchasing, as to factors for the marketing strategies is summarized.

Design/ Methodology/ Approach:

We invited 120 people in different professions served to 15 different companies from 6 countries in machinery industry. The study aims to find factors relations to the industrial brand reputation, that might impact to Industrial Purchasing intention and decision. Thus, the purposive sampling was adapted to set target participants, mainly from machinery parts manufactures and their agents in related industry. Questionnaires were provided by three ways: 40 questionnaires were collected from the industrial exhibitions; 40 were test personally to the participants in print copies and collect back by person; 40 were sent to the specified groups of the participants by e-mail and collect by return e-mail. Job positions of participants were related to organization purchasing in different companies to learn participants' perception according to various factors in the questionnaire.

After literature research on Chapter 2, plenty of claims concerning the positive affection of each single factor related to the brand reputation, which are product quality perception, product data, e-WOM, and e-communication quality, however, what our focus of study is to research the brand reputation is positively affected by information exchange and transferring in those factors through the digital channels. In an era fulfilled of information-easy-grabbing, what people need to worry is not how to get information, rather than, a qualified information fit to resolve the problems are even the critical concern because only qualified information is able to increase working process efficiency, according to Industrial Purchasing Organization. A reliable information provider, as an Industrial Supplier, is welcome as it benefit to the process loop that brings better job performance of the industrial Purchasing Organization, and certainly created the value as a long-term partner.

A concept to assume the difficulties of getting qualified information from the data streaming world shares much of working hours to search for Industrial Purchasing Organization. For Industrial Supplier, to build up the brand reputation image of the reliable information provider, to offer an improved and efficient job function performance of industrial purchasing process, to enhance the connection with Industrial Purchasing Organization based on trust perception, would be a worthwhile industrial marketing strategy. Thus, a research framework was generated as (Fig. 1). From above discussion, hypotheses are assumed as the following:

H1: Product data & information provided on different digital channels has influence to the brand reputation.
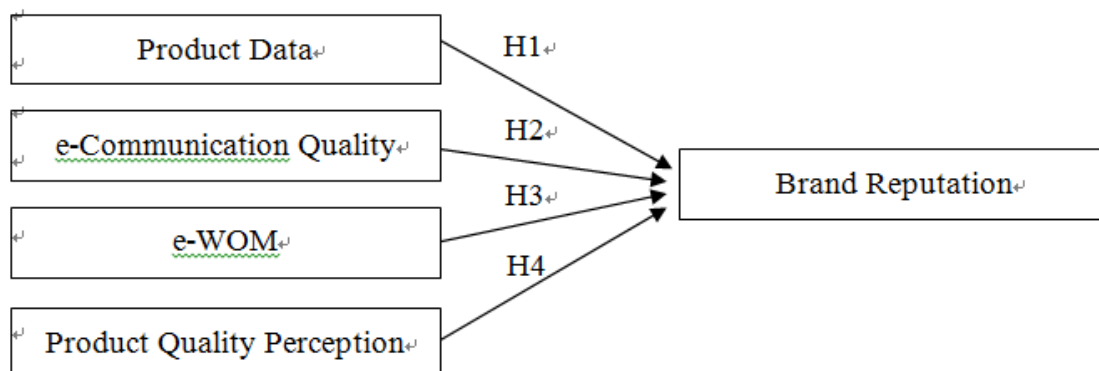
H2: Electronic Communication quality the Industrial Purchasing Organization perceived from social networks has influence to the brand reputation.

H3: Electronic word-of-mouth (e-WOM) through different social networks has influence to the brand reputation.

H4: Product quality perception from the Industrial Purchasing Organization has influence to the Industrial Supplier's brand reputation

Fig. 1

Framework of factors affect to brand reputation

(Expected) Findings/Results:

From the correlation matrix analysis, brand reputation has significant correlations with e-communication quality, e-WOM, and product quality perception, but has no direct correlation with product data. According to previous literature review, we find connections between brand reputation with e-communication quality, e-WOM and product quality perception, that the correlation matrix shows relationship in between as well. However, evidence claimed by Tottie et. al (2016) concerning the product data had influence to e-communication quality that also supports the result of this study concerning the e-communication quality and product data in higher correlation. Also, from literature review on page 24 to 29, as well as practical managerial situation, more complete and clear product information is appreciated by Industrial Purchasing because the information will be forwarded and used internal of the Industrial Purchasing Organization, the utilities of the information brings efficiency and cost saving while running a project. The correlation analysis of each factor has been adapted, as shown correlation matrix of all factors on Table 2.

Table 2
Correlation Matrix between Factors

Correlation Matrix

Variables	1	2	3	4	5
1. Product data					
2. e-Communication quality	.549**	—			
	.000				
3. eWom	.250**	.356**	—		
	.009	.000			
4. Product quality perception	.373**	.351**	.256**	—	
	.000	.000	.007		
5. Brand reputation	.269**	.531**	.447**	.442**	—
	.004	.000	.000	.000	

*** Correlation is significant at the .01 level*

After regression analyses, a general outcome resulted significantly ($R2_{adj.}$ =.402, F=10.595, p<.005); product quality perception (β=0.278, p<.005); e-communication (β=.409, p<.001); e-WOM (β=..261, p<.005), and the factor of product data (β=-.124, p=.005) indicates not significant as assumed of H1. Table 4.7 presents the regression analyses result of factors with influence to the brand reputation. The result indicates that hypotheses predicated product quality perception, e-communication, and e-WOM have influence to the brand reputation are supported by regression analyses. Thus, hypotheses H2, H3, and H4 have been supported by regression analyses.

Table 3
Regression Results of Factors Having Influence to Brand Reputation

Model		Standardized Coefficients β	t	Adjusted R^2	VIF
1	Constant term		4.385***		
	Product quality perception	.442	5.124***	.188	1.000
2	Constant term		2.558*		
	Product quality perception	.315	3.712***		1.204
	Product data	-.114	-1.193	.348	1.512

	e-Communication quality	.483	5.125***		1.484
	Constant term		1.554		
	Product quality perception	.278	3.392***	.402	1.227
3	Product data	-.124	-1.363		1.514
	e-Communication quality	.409	4.394***		1.579
	e-WOM	.261	3.254*		1.172

*** *Regression is significant at the .001 level*

* *Regression is significant at the .05 level*

Research limitations/ Implications:

While facing to a tough competition business, positive information is not problem, negative information harm the Industrial Supplier's brand reputation more. Hardly to manage information streaming since it is operated automatically by IT technology all over the world, except the area without internet access. The other hand, Industrial Purchasing Organization need to have efficient and successful purchasing with reliable suppliers in long term cooperation based on trustworthy perception. Thus, Industrial Supplier prepare qualified information and data, revealed by digital channels, and improve digital channels performance by tracking visitors preference for further information & data optimization to secure it is found quickly and clicked at the first place, those are important process to the industrial marketing strategies.

This research was limited to the group of the area as our knowing under job functions that participants are not so many. Thus result of the study is not appropriate to represent for whole machinery industry or other industries. Suggestions for the researches in the future, survey on more participants in the public, famous and significant international industrial events, especially exhibitions, for data collection might be a direction to have more precise and productive analysis.

Keywords: digital marketing, Industrial brand reputation, e-communication quality

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Study on the change of residential energy consumption pattern and the potential of carbon emission reduction under the sharing economy

——Taking bike sharing as an example

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Abstract

With the help of big data and artificial intelligence, sharing economy has exploded in China. As a supplement to urban public transportation, sharing bicycle solves the travel problem of "the last kilometer", changes residents' travel concepts, and reduces travel costs and energy consumption. Most of the existing studies focus on the changes of total energy consumption, energy consumption structure and energy efficiency, and few people pay attention to the changes of terminal energy consumption pattern. This paper adopts the form of questionnaire including the residents' attitudes, intentions, travel behavior, consumption idea and so on towards bike sharing to analyze the factors influencing the change of residents' travel modes. And on this basis, this paper uses scenario analysis method to analyze the potential of carbon emission reduction under different scenarios and find the scenario with the strongest carbon emission reduction capability. The significance of this paper is to provide policy recommendations for optimizing energy consumption patterns in transportation.

Keywords: Sharing economy; Energy consumption pattern; Carbon reduction

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12.

− The Effect of Online Review of Restaurant Customers on Review Helpfulness and Visit Intention to Restaurants

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Abstract

Online reviews have been recently studied with great interest and have proven to play an important role in the buying process. In addition, research on the usefulness of reviews is actively being carried out, which is the focus of finding factors that affect consumers' decision making in purchasing process. In particular, online reviews play an important role as information media for foodservices, especially since restaurants are difficult to assess before visiting and experiencing restaurants in person. The restaurant user obtains the information of the various restaurants and decides the visit by using a word-of-mouth communication or an online platform. If a restaurant user uses an online platform, he or she will be assisted in deciding to visit the restaurant through a restaurant review that includes a variety of information based on past restaurant customer experience as well as company information provided by the restaurant. Existing studies have identified several review such as A study on the effect of online product reviews on review helpfulness, the relationship between the number of words in an online review and the availability of reviews, the effect of reviewer and review message characteristics on reviews helpfulness.

In addition, as the characteristics of reviewers and reviews collected through variables such as review and reviewer identities, reviewer locations, information volume, and semantic factors may be more insightful, interest in online reviews has increased. Therefore, it is necessary to determine whether the online restaurant review factor has a positive influence on the review helpfulness and user's intention to use the restaurant and can be reflected in restaurant operation.

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Purpose/ Research Question: The purpose of this study is to determine whether the online restaurant review factor has a positive influence on the review helpfulness and user's intention to use the restaurant and can be reflected in restaurant operation. Therefore, First, it is necessary to determine the composition of the contents of the restaurant reviews and evaluate the quality factors such as the length of the reviews, distribution of the number of reviews or online review ratings, quantitative factors and expertise of reviewers, influence of reviewers, accumulated usefulness. Second, we investigate the influence of quantitative and qualitative factors of restaurant review contents on the helpfulness of restaurant review. Third, we examine the effect of the usefulness of the review on the intention to use. Fourth, we will examine whether there are differences in the usefulness of review of restaurant review factors according to age and gender.

Key Literature Reviews:
Design/ Methodology/ Approach: In this study, , data were analyzed using IBM SPSS Statistics 22.0

(Expected) Findings/Results:

Research limitations/ Implications:.

Keywords: Online Review, Review Helpfulness, Visit Intension, e-WOM, Restaurant

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The Role of Network in Improving Innovative Performance: Based on the Service Firms

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Abstract

Purpose/ Research Question:

- In this study, we researched the influence of the initial relationship of entrepreneurial firms, that are located in service industry, on innovation.

- The existing studies mainly focus on the advantages inherent in a strongly connected network, but this study investigates the implications of indirectly connected networks on the relationships among the industries.

- In other words, we focused on analyzing how competitive exposure by strong intermediaries can affect innovation, based on service firms

Key Literature Reviews

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Design/ Methodology/ Approach

- The population of this study is companies of service industry that want to invest with the judges and partners of venture capital companies in Korea.

- Through interviews and questionnaires with them, the theories presented in this study were verified.

(Expected) Findings/Results

- ✓ In this study, we developed the concept of "Competitive information leakage" that occurs when service firms are indirectly connected to their competitors through

intermediary organizations.

✓ In addition, we examined how this competitive information leakage affects the innovation of the start-ups according to each industry group.

✓ It is found through this that indirect relationships with competitors for each industry group influence innovation, and several factors such as outflow opportunities and motivation for important information of intermediaries influence innovation.

Fashion Trendsetting, Creativity, and Technological Innovation: Gender Matters

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<Abstract>

Fashion technological advancement has brought dramatic changes to consumers' consumption behaviors. Consumers' self-awareness and sense of fashion are being transformed by technology. Because combinations of fashion and digital innovations are emerging, it is critical for researchers as well as retailers to understand consumer responses to new fashion technologies. Fashion trendsetting refers to individuals who are among the first to adopt an innovative fashion and then communicate this effectively to others (Batinic, Wolff & Haupt, 2008). Adoption and diffusion of new fashion products begin with the actions of trendsetters. Early in an innovation's life cycle, fashion trendsetters notice its potential, assess their purchase intentions and communicate its potential to others. Whether, or how quickly, consumers adopt new fashion technology products may depend on their characteristics (e.g., attitudes toward fashion technology, gender, and creativity). Gender also matters to developing the fashion trendsetting model, Among college students, women (vs men) indicated greater fashion trendsetting (Workman, Lee & Jung, 2017).

Keywords: Fashion Trendsetting, Creativity, Innovation, and Gender

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15.

A Study on the Influence of Pre-Entrepreneur Entrepreneurship Education on the Entrepreneurial Intention
- Focusing on mediating effects of Alertness

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Abstract

Purpose/ Research Question:
The purpose of this study is to examine the effect of the Pre-Entrepreneurial entrepreneurship education on the intention to start a business. The purpose of this study is to investigate how Pre-Entrepreneurial can find start-up opportunities in finding out start-up opportunities and find out opportunities for start-ups in a comprehensive way.

Key Literature Reviews (About 3~5 papers):
1. Entrepreneurship Education
Entrepreneurship education is an education that conveys knowledge, skills and attitudes related to start-up to Pre-Entrepreneurial, and it means education to develop the ability to inspire entrepreneurship (Vesper, 1986). This kind of entrepreneurship education is known to contribute to the formation of qualities as a competent entrepreneur, such as helping preliminary entrepreneurs to understand the management of entrepreneurial enterprises, motivating actual entrepreneurship and raising the entrepreneurial spirit necessary for them Higgins & Elliott, 2011).
Timmons (1994) emphasizes the importance and necessity of entrepreneurship education because entrepreneurship, entrepreneurship and entrepreneurship can be acquired rather than inherited. These studies show that entrepreneurship education mainly contributes to cultivating entrepreneurship, which is a key factor in entrepreneurial success, and promotes entrepreneurial intentions. In other words, if successful entrepreneurship is entrepreneurial and entrepreneurial intention, it is necessary to raise the entrepreneurship and entrepreneurship of the entrepreneurs, which means that they can be blind start-ups without systematic entrepreneurship training(Gartner

& Vesper, 1994). In addition, the research on the effect of entrepreneurship curriculum on entrepreneurship intention has been mainly focused on the study of university and graduate students who have established entrepreneurship curriculumv(Mueller, 2011). The common conclusion of previous studies is that entrepreneurship education has a positive effect on entrepreneurship and entrepreneurship. Most educational institutions believe in entrepreneurship and the importance of the knowledge and skills they need to become entrepreneurs and offer entrepreneurial education programs that believe that the percentage of policy support for entrepreneurship education is growing in many countries around the world(O'Connor, 2013; Walter, 2016; Byun et al., 2018).

2. Alertness

The Alertness of the entrepreneurial opportunity has emerged from a theory of market process by Austrian economist Kirzner (1973). In this study, dexterity of opportunity is defined as 'the Alertness to know where to find knowledge' (Kirzner, 1973). This is an individual's Alertness to identify opportunities that are overlooked by others and is distinct from mere knowledge. The theory of market process of Kirzner (1973) started from the question of a theory of equilibrium price of Anglo-American economics. In the equilibrium analysis of the equilibrium analysis of the market price, the price and quantity appearing under the equilibrium condition are understood and the competition process and the entrepreneurship are understood in terms of the process of the market process theory. Kirzner (1973) argued that the market should be understood from a process perspective, paying attention to the flaws in the balance analysis perspective that overlook the role of competition and entrepreneurs. From the perspective of the market process, it is important to obtain market information through experience in market participation. Competitive market processes are inherently entrepreneurial, and entrepreneurs use their superior knowledge to gain profits. The form of knowledge that drives profits means not only a real knowledge of market information, but also a knowledge of where market information can be found, namely, Alertness. (Kirzner, 1973; 1979), an agile entrepreneur has the Alertness to recognize the imbalance of the market as a result of various changes in the environment, Can be recognized more quickly and diversely(kirzner, 2009).
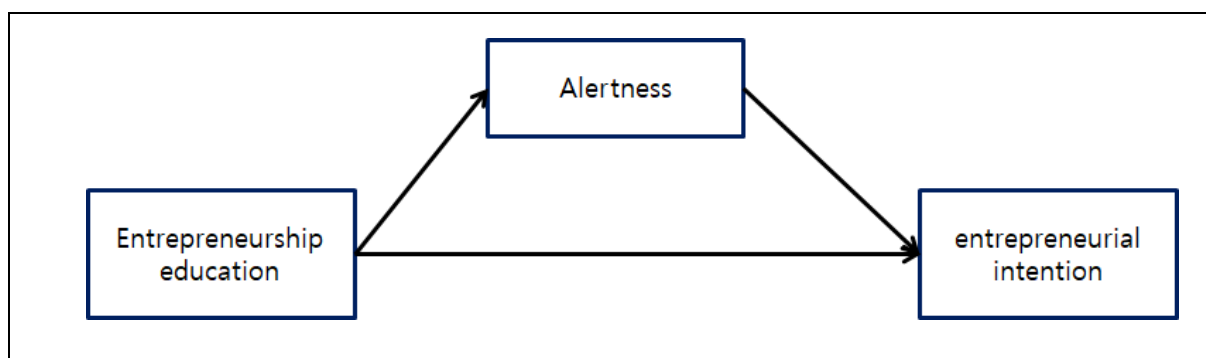
3. Entrepreneurial intention

Entrepreneurship is the creation of a valuable organization through the transformation and transformation of business resources at the beginning of the business (Vesper, 1990). In particular, startups are interested in creating new products and services based on innovative ideas under uncertainty (Ries, 2011). Start-ups start with entrepreneurial intentions that show their own appraisal about the possibility of a prospective founder voluntarily starting in the future. The reason for the start-up can be called "the concept of self-evaluation about the possibility of the founder's future start-up rather than immediate start-up behavior" (Cheong & Ha, 2012). In other words, intention is a variable that accurately predicts and explains whether or not a specific action is carried out. It means an effort to prepare a behavior in a certain way or an intention to try something (Ajzen, 1991). Therefore, the entrepreneurship intention is an essential element for concrete implementation

of future entrepreneurship (Kim & Lee, 2014). The entrepreneurial intention comes from the recognition of desire, feasibility, and propensity to determine opportunities (Lee et al., 2011). In order to be able to make business decisions and behaviors, a positive attitude and experience should be preceded. Factors influencing entrepreneurial intentions can be classified into personal characteristics and environmental characteristics of founders (Yoon, 2004). The results of this study are summarized as follows. First, the effect of entrepreneurship factors (personal factors, environmental factors) on entrepreneurship intention is the main focus of research on entrepreneurship intention (Choi, 2012). First, the psychological characteristics of the individual were empirically verified (Bygrave, 1989) such as intrinsic control position, risk seeking tendency, self - assurance, achievement demands, tolerance to ambiguity, and innovation. The environmental characteristics include role model social recognition of entrepreneurship, entrepreneurial culture, and entrepreneurship support programs. Other studies have suggested that young student entrepreneurs have more innovation and technology skills, along with their perceived behavioral control and, consequently, their flexibility to have a positive effect on the company's intentions(Krueger, 2000; Kautonen et al., 2011; Luca Ferri et al.,; 2018).

Design/ Methodology/ Approach:

In this study, we investigate the influence of the entrepreneurship education on the intention of entrepreneurship and examine the effect of Alertness between entrepreneurship education and entrepreneurship intention.

<Figure 1> Research Model

1. Entrepreneurship Education & Entrepreneurial intention

The concept of entrepreneurship and start-up is spreading widely today. Entrepreneurship is not a 'state of being' but a 'process of becoming' (Bygrave, 1989). Previous studies have shown that entrepreneurship starts with perception of entrepreneurship and entrepreneurship is initiated through entrepreneurship. In order to start a business, entrepreneurship and entrepreneurial intention are required first. However, even if there is a willingness to start a business, it will be a failure if you start a blind start without a clear goal or right knowledge of start-up. Therefore, in order to successfully start-up, it is important to strengthen entrepreneurship and acquire the

competencies necessary for start-up. If entrepreneurship is inherently acquired rather than acquired, entrepreneurship education will have no meaning (Zhang & Hong, 2001). In this respect, entrepreneurship education is absolutely essential to fostering the entrepreneurship of university students (Bae, 1998). Education is one of the areas where people invest the most and most importantly. Through education, people gain opportunities to improve their quality of life as well as acquire necessary knowledge and skills (Wu and Wu, 2008). West and Hore (1989) suggest that education has three effects on students: 1) individual development, including changes in attitudes and values, 2) change in ability, and 3) potential social effects. Van der Kuip and Verheul (2004) argue that entrepreneurship and education systems are both important for economic development, but entrepreneurship education is more important from a social point of view. The results of previous research on entrepreneurship education show the relationship between entrepreneurship education, the intention of entrepreneurship of university students, and the activation of entrepreneurship. Hatten et al. (1995) found that entrepreneurship education influenced individual attitudes and behavior toward entrepreneurship. In addition, entrepreneurs are more likely to be acquired rather than being born with innate ability to start a business (Timmons, 1994). Therefore, entrepreneurship education is needed to enhance entrepreneurial capacity and entrepreneurship. In particular, entrepreneurial knowledge and skills acquired through team workshops stimulate entrepreneurship motivation, will be. Solesvik (2012) study of three university students in Ukraine shows that entrepreneurship and small entrepreneurs tend to be more entrepreneurial motivated and more likely to be entrepreneurs. The same research results are shown in domestic studies on the effect of entrepreneurship education. The same research results are shown in domestic studies on the effect of entrepreneurship education. In a study of prospective founders in the restaurant industry, Park and (2011) found that the satisfaction of the students in the entrepreneurship education had a significant effect on the intention of the entrepreneurial intention. As noted above, entrepreneurship education not only enhances the individual's ability to manage, but also increases the likelihood of becoming an entrepreneur (Lucas, 1978) and is an important factor for successful entrepreneurship and successful entrepreneurial activities. The following hypothesis was derived through this study.

***Hypothesis 1: The Entrepreneurship education of the Pre-Entrepreneur will affect the* Entrepreneurial intention**

2. Entrepreneurship Education & Alertness

Research on Entrepreneurial Alertness (Tang, et al., 2012) in the field of entrepreneurship research as a core competence of entrepreneurial thinking continues to follow the academic and social trends. The concept of entrepreneurial Alertness is also a key component in entrepreneurship research (Tang et al., 2012). In a recent study of Singaporean students, Uy et al. (2015) found that entrepreneurial dexterity had a strong influence on the mindset and career adapt a Alertness. Obschonka, et al. (2016) argue that entrepreneurial personality traits (leadership, self-esteem,

creativity) have an effect on entrepreneurial Alertness and entrepreneurial intention, consistent with the existing Brandsta¨tter (2011) study. Other studies have suggested that young student entrepreneurs have more innovation and technology skills, along with their perceived behavioral control and, consequently, their flexibility to have a positive effect on the company's intentions(Krueger, 2000; Kautonen et al., 2011; Luca Ferri et al.,; 2018). We also tried to find out how to develop entrepreneurial Alertness and increase entrepreneurial Alertness. The following hypothesis was derived through this study.

Hypothesis 2: The Entrepreneurship education of a Pre-Entrepreneur will have a positive impact on Alertness.

3. Alertness & Entrepreneurial intention

Highly sensitive to information can be used to recognize opportunities (Ray & Cardozo, 1996)
The higher the agility, the more business opportunities are found in general information (Murphy, 2011). In addition, even if products and services do not produce a high level of innovation, they can recognize the potential for business opportunities by observing changes in the environment (Kirzner, 2009). Tang et al. (2012) developed the scale of Alertness in three dimensions. Through the scale, the effect of the temperament and experience level of the entrepreneur on the Alertness and the effect of the Alertness on the type of opportunity were identified. (Fiske & Taylor, 1984), the Alertness of agility to improve (Tang et al., 2012). Ardichvili et al. (2003) reported that personal characteristics and social networks, and related prior knowledge, affect Alertness and experience the process of recognizing and developing business opportunities. Personal characteristics(Krueger & Brazeal, 1994) and creativity (Schumpeter, 1934; Winslow & Solomon, 1993; Kaye, 1986). scholars have established that the entrepreneurial intentions are characterised by the individual's perceived feasibility because they may influence the start-up of entrepreneurial initiatives(Taylor, 2003; O'Connor, 2013; kim & lee, 2018). Dayan et al. (2013) found that resource accessibility and resource ownership can have a significant impact on creativity through Alertness to opportunity. The following hypothesis was derived through this study.

Hypothesis 3: Alertness will have a positive impact on the Entrepreneurial intention

4. Research method

We will examine the hypotheses for the Pre-Entrepreneur and examine the meaningful relationship between the entrepreneurship education, Entrepreneurial intention to start-up, the entrepreneurship education, the Alertness and the entrepreneurial intention.

Research limitations/ Implications

This study examines the effect of entrepreneurship education on Entrepreneurial intention for Pre-Entrepreneur and empirically analyzes mediating effects of Alertness. Predictability predicts that

entrepreneurship education will have a positive impact on entrepreneurial intentions as well as previous studies, and Alertness is expected to play a mediating role in entrepreneurial intentions and entrepreneurial education and entrepreneurial intentions. Degrees can be considered as a very important predictor for finding opportunities through entrepreneurship education. In Korea, there is a lack of research on Alertness, so it is expected that it will be a more valuable research if the research is continuously conducted through various analysis methods using the same parameters.

Keywords: Pre-Entrepreneur, Entrepreneurship Education, Alertness, Entrepreneurial intention

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Exploring the Enablers of Strategic Orientation for Technology-driven Business Innovation Ecosystem

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Abstract

Purpose/ Research Question: Business models driven by technological innovations have helped develop and led growth in various markets. The concept of an innovation ecosystem has been proposed by the academic community and is widely used to interpret the connection between technological innovations and market development. However, such a relationship needs to be examined by different individual cases before the concept can be generalized. Strategic orientation is important for obtaining competitive advantages by establishing value for firms (Wei, Austin Rong-Da & Su-Chang, 2014). Consequently, this study investigates the relative and collective influence of various orientation on technology-driven Business Innovation Ecosystem. It also targets to see whether there is any clue undiscovered as of yet in this concept.

Key Literature Reviews: The innovation ecosystem interprets the dynamic causal circles of technological innovation, market development, and business model through interconnections among innovation actors (Rabelo et al., 2005). However, past literature also addressed the disparities in performance of companies due to their execution abilities (Slater et al., 2006) and resource allocation processes (Morgan,Vorhies, and Mason, 2009), which are influenced by their strategic thinking (Song, Droge, Hanvanich, and Calantone,2005). This is an important influential factor unmentioned in the innovation ecosystem. Hence, this study redefines this concept from the perspective of different strategic orientations.

Design/ Methodology/ Approach: Using the multiple case method, analysis was conducted and generalizations offered after selecting three representative high-tech manufacturers in Taiwan as the research object. These three companies actively engage in product R&D and have realized remarkable market achievements. Strong personal contacts were also very helpful

in establishing rich and real individual cases during information acquisition. This study provides a dynamic course description of the innovation models and market development of the three companies, determines the relevance of strategic orientation with the two factors above, and establishes a theoretical model. The sources of research data include secondary data collection, interviews, etc. Secondary data included information and event reports of the case companies. This research first collected data from top management, in order to understand the core thinking and connotation toward innovation and market. Upon the generation of preliminary ideas, this research then tracked the histories of the individual cases and performed purposed-oriented sampling to understand if there is any difference between the ideas of different members of the organization. Such an action allowed this research to re-examine the data, seek new discoveries within, and finally to build the strategic orientation-driven innovation ecosystem model of this research.

(Expected) Findings/Results: This research found that new business development undergoes various stages. Two elements exist: new product development and new market development among technological innovations-new business development- market size. Technological innovations have positive impacts on new product development, and new business development can only be realized with the continuous increase of new product development performance (e.g. product innovativeness, product development speed). The development of any new business requires connection with the market and the collection of consumer and competitor information, which enable the products and services to satisfy the customers effectively and to help bring the business to the stage of new market development.

This research also found that three strategic thinking orientations, including market orientation (MO), interaction orientation (IO), and entrepreneurial orientation (EO), generate a positive intensifying impact of a casual loop in the overall innovation ecosystem model.

When an organization possesses market orientation, it owns market intelligence and could make responses. It is also able to transmit better customer value and more two-way communications, which can positively intensify new business development. Interaction orientation represents the beliefs of the customers, coordination with them in the co-creation of value, and interaction with them in problem-solving. Past research finding suggested that interaction-oriented firms believe that continuous interactions can improve the quality of their relationships with their customers (Ramani and Kumar,2008; Feng Hsu, 2016). Hence, it shows a positive intensifying effect of new product development- technological innovations- new

business development. While entrepreneurial orientation stresses the strategic decision-making process, it also emphasizes the risk input of resources in an unknown environment or introduces new products/services that help create new items, with the interested parties being the principal business philosophy. Thus, it plays a positive intensifying effect on technological innovations and investment on technological innovation. The finding also responded to prior research indicates that firms that combine MO and EO achieve better performance than do firms with only an MO or EO (Atuahene-Gima & Ko, 2001; Hsiang-Ling& Chun-Hui, 2013).

Research limitations/ Implications: This research offers the following contributions to the new theory of scientific and technological innovation. 1) Re-examining the hierarchies of new business development, it found that new business development should be regarded as a gradually evolving process, in which the staged discussion of this element could deepen the connotation of the innovation ecosystem. 2) Previous literature on the innovation ecosystem mainly focused on macro considerations, such as discussing the impacts of national policies on economic innovations and market behaviors, whereas this research conducted analysis on the organization level, thus providing more profound insight for the development of an innovation-market by companies at the execution level. 3) As previous theories mainly explain the relationship between scientific and technological innovation and new business development from the external point of view, i.e. market-driven thinking, they lack an internal point of view, i.e. strategic-driven thinking. Because strategic thinking reflects the efficiency of company management, this research hence incorporates this concept into the discussion to make this theory more complete.

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17.

Dynamics and Difference of Business Models in Car Sharing Industry

- Open Innovation as the trigger of diverse business among Uber of US, DiDi Chuxing of China, and Kakao T of Korea.

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1. Introduction.

This paper discusses dynamics and difference of business models in car sharing industry, and focuses on open innovation as the trigger of diverse business models among Uber of U.S., DiDi Chuxing of China, and Kakao T of Korea.

1.1. Research question

Main research question is as follows.

What make the difference of business model in the car sharing industry?

We had two detail research questions additionally.

Does the difference of open innovation motivate the diversity of business models among Uber, DiDi Chuxing, and Kakao T?

If then, how does the difference of open innovation motivate the difference of business models among Uber, Didi Chuxing, and Kakao T?

1.2. Research Scope and Research Method

We used the participatory seeing, deep interview, and case study. In addition, we used literature reviews to validate the interview results additionally.

First, we did participatory seeing and deep interviews at Daegu, and Seoul in Korea with Kakao T taxi drivers from 2018. 2nd June to 5th of August with half structured questionnaire at <appendix 1> like Figure 1.

Table 1. Kakao T Taxi driver participatory seeing and deep interview lists.

Number and interviewee	Day and Time	Major Finding	New situation	requirement
1 Kim DaeKwon	2nd June, 2018 7am- 8am Seoul	Income increase with Kakao T, 30%	Average 11-12 Kakao T Calls One day	Smart Call distance limits 1-2 km Pay the points at the moment

2 Kim HaeJung	26th May 7-8 am Seoul	Top driver , Priority allocation of customer is used when come to Seoul, or go back home.	One day 30 calls, One month 400 calls	Smart call points 2000-3000 requirement. Customer Cancel too Much Opposite direction problem.
3 Jung kuBok	25th May 11-12 am Daejun	Old driver does not use Kakao T Taxi driver income too small for younger generation to join	One day 3-10 call Priority allocation of customer 1 time	Car direction And customer direction opposite
4 Oh OkSea	25th May 7-8 pm Daejun	Hot time(6-8 pm), too much Kakao T call. Select customers.	5-10 calls one day After using Kakao T, income increased 20-30%.	Too much Taxies in city. Kakao T increases the income of taxi driver without the decreae of taxi
5Oh YongMan	12th May 6-7am Seoul	Car Sharing Taxi company and Individual Taxi disagreement. Taxi driver agreement No receive taxi call Penalty from Kakao T	today 3 calls average 10-15 calls one day. Priority allocation 1 time one day	If Star under 5, Priority allocation 1 time one day disappear, This should be from driver, not customer.
6 Hang HyoSuk	19th May 2-3pm Seoul	Priority allocation customer use when go back home, KahnGu	Oneday 6 calls One month 60-100 calls, Today 2 times call cancels from customers	Taxi driver should treat human. Service jobs. Kakao T can contribute this.
7 Kim MungSu	19th May 6-7 am Seoul	Weekend Kakao T is useful to find customer.	Priority allocation to KimPo airport in the morning is Good. One day 7 hours working 3-4 calls is great.	Map accurateness should be increaed
8				

Second, we interviewed 13 Uber drivers at San Francisco between 2018 August 17th – 23th with same half structured questionnaire like <Appendix 1> as follows Table 2.

Table 2. Uber driver participatory seeing and deep interview lists.

Number and Interviewee	Day and Time	Major Finding	New Situation	Requirement
1 Mehdi Uber X	August 17tth 16:46-	As University students, one day 4-8 hours Uber Drivers Pm 4-10, good time to drive. Uber pool moves more than Uber X.	The way should follows if no requirement from customers. Monday-Thursday 70 calls, 100-200$ bonus. Individual insurance. But Accident during Uber is paid by Uber.	Drunken customer dislike. The locate of customer is not correct.

2 Melese Uber Black	August 18tth 10:00-	Rides give message at the system to driver. Kind service, good communication, clean interior, high manner He moved from taxi driver to Uber driver	7,000-10,000 $ one month, Every week Thursday payment, Uber Black 25% company, Uber SUVB 28% company	Uber black announces the expansive price in advance. Please do not show it in advance.
3 Nestor Uber express pool	August 18th 20:44-	When Calling, announce my location. Walking to the pointed place. Uber express and X near no difference.	Moved to Uber driver from Truck driver. Am 5- Pm 5. Among 25 calls, Uber express 10 calls, Pool 10 calls, Uber X 5 calls,	Pool no meet case should pay the drive fee. We paid one time 5 dollars.
4. Andre Uber pool	August 19th 10:06-	Part-time Uber driver for 1 year, from early morning 7-8 hours. Berkeley one day 150$, San Francisco one day 200$, Wife Uber driver.	After we are in the car, one woman joined at our car. Moring time 4.30-7.8 hours 60% Uber X, 10-20 Uber Express 20% Uber Pool	One week 30 calls, + 30 hours Uber 30$ bonus
5. Mike Uber Select	August 19th 19:05-	At the starting time Uber Limousine Driver , Before call, never know the destination. Uber black commerce insurance, Uber Select regular insurance, 5 dollar airport fee paid by Uber,	One day 5-6 hours, One week/1400$, 2 ways for Uber car allocation, first, driver propose the destination, second, the nearest driver	Income decrease from one day 1,000$ to one week 1,000$, Too much Uber driver, customer selects cheap Uber cars.
6. Yaser Uber X	August 20th 10:00-	Cooker, 1 years no job, Next week go back as Cooker, Every Wednesday payment, end of year total reports from Uber,	Cools allocation, after ride, we can know the destination. Students do not complain. Uber pool majority, most of them students,	Diverse customer , a lot of complain from cusomers, The system to take care of driver needed,
7. Andy,	August 20th 11:42-	Uber pool, 8 minutes waiting, Am 10:00-17:00 major working time as Uber driver	Income in midnight is high. One day 7 hours, one week 6days, 900-180 $ income one week.	Uber pool , no co rider.
8. Mohammed Uber pool	August 20th 13:23-	During destination, pick up co-rider at airport, and drop her at her destination during driving my destination.	One day Uber call 25, Uber X 15 calls, Uber pool 10 calls, co-riding reject	Co-rider Woman, normally user Uber pool, just fast case user Uber X, Uber Lift same

		Mainly midnight Uber driver, Like to service to worker,	possible, but accept fast way usage and incentive from Uber,8 hours, Driver will wait at airport to take to San Jose.	drive, Long way Lift better, Uber has more customer,
9. Raul Uber X	August 21th 15:33-	Moved from delivery job to Uber, 6 hour part time job, 5-11 pm, Friday, Saturday, Sunday working, 6 hears 10-15 calls half Uber X, half Uber pool	Individual Insurance, And Uber insurance All, Driver likes to meet people as Uber Driver, Near University Uber Pool many,	Before Uber driver, ID sending, - Law, Car, Insurance check, driver licensing, Car, Insurance, Credit all needed.
10. Mamid Uber X	August 21th 20:58-	Electronic car, 7,200$ Prius New Car buying, From truck driver to Uber Driver, Uber, Lift same using, 70 calls 200$ bonus from Uber,	One day 8 hours One month 5,000$, Uber system one day 15 hours operating, One day 20 calls , Pool 15 calls, 5 X calls, Customer drunken vomit Uber pay money to customer and receive money from customer,	Uber drivers have 2 jobs normally, Uber license 1 year, after then again . After call 10 minutes, cancel possible, 3 $ driver receiving,
11. Akisha Uber express pool	August 22th 11:31-	Woman driver, Walked 3 minutes until appointed place, Moved from security work to Uber driver, Woman driver 5%, Uber –eat, one week 5 times, 3$ per time, Promotion 180 $ receving- if then, stop working the day, Uber drug also	Pool customer 1-2 times uses pool one day. Driver individual insurance, Car damage including vomit , Uber payment and receiving money from customer, Vomit pay 400 dollars, One week 900$, one day 7 hours,	Uber map increasing at location needed,
12. Brenda Uber X,	August 23th, 20:32	Woman driver, Driving in San Francisco, One week 80 calls, 170-200$, Most customer in San Francisco are business men.	One day 20 calls, half X, Safe as woman driver, Reject customer possible, baby without sheet rejection possible,	After 60 calls, calls is not easy, Uber Navigation is not good,
13. Martin, Uber XL	August 23th, 21:46-	Uber XL, until 6 customers possible, Uber driver + financial job,	One day 10-12, one month 6000-10,000 dollars, Bay area, New	Before Uber driver , check security, insurance, license, Car all check,

| | | | Uber Select _ XL, Uber black require | York, LA Big city have Uber pool, One day 20-28 calls, | |

Third, we interviewed 14 Didi Chuxing drivers at Beijing between 2018 August 17th – 23th with same half structured questionnaire like <Appendix 1> as follows Table 3.

Table 3. DiDi Chuxing driver participatory seeing and deep interview lists.

Number and Interviewee	Day and Time	Major Finding	New Situation	Requirement
1. Guo Yan Lin DiDi Express X	August 26th 10:23-	Wechat Pay main Payment system, Individual insurance, If driver reject customer , star grade decrease,	Am 5- pm 5, maximum 12 hours, One day 20 calls, 2-3 pool, One month 5,000-6,000	Driver license, insurance, under 55, Tattoo no, No guilty ets are required. Pet dog carrying customer can not reject.
2. Wang DiDi Primier	August 26th 19:13-	Didi Chuxing Primier driver should pass exam, 26% Didi, 20% expensive than Express X, 20% bigger revenue than express X	One day 12 hours, 24-25 day, 10,000, Everyday, Dress photo, and car photo upload at the system, Wechat payment	Should have good individual car such as Honda Black
3 Tian DiDi Luxury	August 26th 20:59-	Dress(white shooter and nag tie) Open door service, water, Tissue, Didi employment, welfare insurance by Didi, Handsome, 5 more drive experience, every day driver + car photo 6, Some time drive 20 km to meet customer	12 hours, Total income 30,000, Individual income 10,000, 5 times expensive than Express X, 3 times expensive than premier, One day 7-8 call, Shot distance, Total 200 Luxury Cars	DiDi pay insurance, A kind of DiDi Taxy, Audi A6 and upper, BMW 5 and upper, Venture E and upper,
4. Xhang Express X	August 27th 11:01-	Cancel cost 13, Long distance one way is difficult, Allocation 2 way- choice, free allocation, Choice added for the Didi driver who do not have address in Beijing to let him escape the police,	Long distance drive call several time, Fail, One month 5,000, one day 7-8 hours, One day 15-16 calls express X 12-13 calls, 2-3 pool calls, Start in the morning,	Real Driver and DiDi is not same, Cancel No Beijing address Didi driver in danger, So they should choose chose allocation mode,

			dislike long distance,	
5. Yiheyuan Express pool	August 27th 13:44-	Pool but no co- rider, Pool price difference with X 10%, Co-ride, time and distance makes difference of driver income,	12 hours, 10,000 One day 30 calls, 20 calls X, 10 pool, Everyday payment, Alipay, Wechat pay,	Express Pool, customer not move, drive moves to customer, Kia car, Express grade,
6. Jiang, Express X	August 27th 18:39-	22 calls one day, 70% X, 30% pool	One month 22-23 am 6-pm 11, pure 12 hours, one month 10,000	3-4 km allocation too far allocation,
7. Ma Express X	August 27th 20:13-	Moved from delivery job to didi, Car buy for Didi,, Didi call allocation 3 km inner, 10 minutes if not traffic jem,	One day 10 hours, 26 days, One day 400 9am-12 pm, Sleep after lunch 3 hours, No appointment, No long-tem customer,	Didi driver is good to meet stranger,
8. Wang Express X	August 28th 12:04-	One day 3 times cancel possible, Star decrease, From 4 times driver should pay money to DiDi, One day 20 calls, 95% Express X, the others pool,	10 hours, am 7- pm 7, 22-23 days, one day 600, one month 10,000,	Long distance DiDi not operate, Receipt case pay tax, Didi income decrease,
9. Zhuang Didi Premier	August 28th 14:08-	Woman Driver, 10% woman driver, No danger for woman driver, Premier exam and interview, but X and under no needs to exam, and interview,	10 hours, 20 days one months, 10,000, Express than X, One day 15 calls, Allocation in 3 km is changing 5-7 km,	Luxury no includes Vokswagen, Premier and Luxury driver should not talk to customer first, So not good relationship with customer,
10. Yu, Didi Luxury	August 28th 17:06-	Luxury car only book designated driver. High school +, driving skill, no guilty experience, Luxury 20% self owning car,	One day 7-8 call, One month 20,000, Wechat Payment, Driver can not talk to customer first, Short distance, long distance no difference, Base fee 108 if long distance,	DiDi maintain 200 luxury cars.

11. Liu Didi X	August 28th, 19:21-	Move from truck driver to Didi driver Go to pick up customer, No pick up 3 km 3 payment from Didi,	13 hours, 6.30- until full time, 25 days or over, 14,000-15,000, 20 calls, 15 X, 5 pool,	Every day payment from Didi, Allocation in 3 km, but it is too far,
12. Liang Taxi driver	August 29th, 10:07	Taxi driver, Woman driver,] Didi taxi calls not much, Driver can choose choice mode, or allocation mode, One month 8200, didi earn money is 3,000	Long distance allocation can not reject because star decrease, All taxies use Didi app, When Didi works for taxi, taxi earns big money, Taxi does not regists to Didi,	No incentive to Didi, Not much call allocation,
13. Li Taxi driver	August 29th 13:49-	Didi no pension, 57, so until 60 taxi drive, One day 8 calls decreases to 3-4 calls,	3500 taxi company, 5,000 driver, Among this 20% from Didi, Taxi is expensive than express X,	Taxi driver income decreases from 7,000 to 4,000
14. Li Didi express X	August 29th 14:37-	Car cleaning and Didi driver 6 hours, Didi exam car should stop after 8 years. So no want Didi exam,	If Didi driver is different several times, cancel is possible, Every Friday payment,	Location accuracy should be increased.

2. Literature Reviews and Research Framework.

2.1. Literature Reviews

According to a research in Korea, carpooling services have a significant socio-economic cost-saving effect on traffic congestion, environmental cost reduction, and so forth, and will therefore play an important role in traffic demand management T(Do & Jung, 2018) In China, as the user community of a e-hailing platform enterprise, Didi Chuxing grows larger than the size of the traditional taxi user community, it motivated the success of this car sharing economy business model in China with the increasing of difficulty of control of this market from government (Ma, Li, Wu, & Yan, 2018). The access or sharing based consumption , defined as transactions that can be market mediated but where no transfer of ownership takes place , is becoming increasingly popular, yet it is not well researched or theorized (Bardhi & Eckhardt, 2012). Even in car sharing industry, there are big diversity like between Zipcar which is based on access base, are Uber which is sharing very different. In addition, the car sharing industry has been changed dynamically from the Car sharing Portland(CPS) which was the first car sharing organizing in US to until now Uber. Which is treated as a new approach to urban transportation problems now(R.J. A. o. S. I. Katzev & Policy, 2003).

In Europe, the early adopters of the car-sharing concept have been largely motivated by environmental concerns and financial savings including the excessive time public transport,

residential parking problem, major changes in the members' personal lives or mobility situations, or rising insurance costs or the lack of funds to replace a vehicle(R. Katzev, 2003). The new-floating car-sharing system such as car2go can go effects in environmental, social, and economic aspects together even though the effects can be different according city characteristics, or technological development(Firnkorn & Müller, 2011). By the way, until 2000 the car sharing service was focused on environmental issue such as changing consumer behavior through eco-efficient services, environment friendly identity-promoting of car sharing service user, or emission reduction with car ownership reduction(Meijkamp, 1998; Prettenthaler & Steininger, 1999; Steininger, Vogl, & Zettl, 1996). But, the development of professional car sharing by environmentally concerned citizens did not stay but move to user-led innovation processes with additional market values with more fascinated technologies such as relocation algorithms for free-floating car sharing systems(Truffer, 2003; Weikl & Bogenberger, 2013). The sharing and collaborative consumptions such as Airbnb, Zipcar, or Freecycle are rocket shooting with their reliance on the internet, especially web 2.0 , Web 2.0 refers to collectively to websites that allow users to contribute contents and connect with each other in 21 century(Belk, 2014; Carroll & Romano, 2010). Zipcar is different from car sharing organization in 20 century in that it is a commercial "car Sharing" organization with a fleet of automobiles in North American and some European cities like Uber, Didi Chuxing, or Kakao T. The sharing economy now indicates both social(relational, communitarian), and economic(allocative, profit-seeking) aspects which appear to be in tension(Katz, 2015).So, the sharing economy lacks a shared definition until now, and some talks that the sharing economy isn't about sharing at all(Botsman, 2013; Eckhardt & Bardhi, 2015).

By the way, as car sharing moves from environment friendly life style to a kind of new business, sharing economy firms such as Uber, Didi Chuxing, or Kakao T are disrupting traditional industries across the globe such as Airbnb in hotel industry, Uber in taxi industry, and others(Cannon & Summers, 2014). So, the 'sharing economy' has attracted a great deal of attention in recently and platforms such as Airbnb and Uber are experiencing explosive growth, which in turn, has led to regulatory and political battles(J. Schor, 2016). In many countries, regulation is often the most significant barrier to future growth for sharing economy which have four broad categories: recirculation of goods, increased utilization of durable assets, exchange of services, and sharing of productive assets(Cannon & Summers, 2014; J. Schor, 2016). For example, the taxi industry of Shenzhen, China which has enough population for taxi industry is in the serious danger at the growth of e-hailing and ride-sourcing by Didi Chexing(Nie, 2017). The interests of sharing-economy firms and city governments are often aligned, but failing to engage early on with potential regulators can raise the suspicion that companies are trying to exploit loopholes rather than develop a legitimate business model(Penn & Wihbey, 2016).

As IT is spreading all industries in the 4th industrial revolution, new business models which challenge traditional business strategy, so to say open innovation, and open business models which are the core of sharing economy firms such as Airbnb, Uber, and others are emerging(Chesbrough & Appleyard, 2007; Lee et al., 2018; Yun, Won, & Park, 2016). In a Sharing economy, people,

organizations and communities as active participants produce or co-produce goods and services collaboratively or collectively or co-operatively, so to sharing economy firms mainly pursue open innovation strategies and open business models(Matofska, 2014). Business models of sharing economy are also fundamentally linked with technological innovation in that business models mediate the link between technology and firm performance by openness and user engagement, so to say open innovation business model(Baden-Fuller & Haefliger, 2013). Sharing economy can be used as an umbrella for sharing economy, on-demand service, and collaborative consumption it is based on 2nd IT revolution in the 4th industrial revolution(Gata, 2015). Sharing economy has many diverse business models in 4 dimensions; Technology such as tech-driven, tech-enabled, and low/no-tech; Transaction such as market, alternative , and free; Business Approach such as profit-driven, hybrid, and mission-driven; Shared resources such as new resources, used resources, and under-utilized existing resources; Governance Model such as from traditional corporate   structures to collaborative governance models(Cohen, 2016). So to say, business models in sharing economy is 5 factors such as; 1) largely market-based; 2) high-impact capital based platform; 3) Crowd-based networks rather than centralized institutions or hierarchies; 4) blurring lines between the personal and the professional; 5) blurring lines between fully employed and causal labor, which has a new kind of relationship of digital trust(Sundararajan, 2016, pp. 27, 47). Most of business models in sharing economy can be evaluated as open innovation business model because sharing economy means crowd-based economy(Sundararajan, 2016, p. 26).
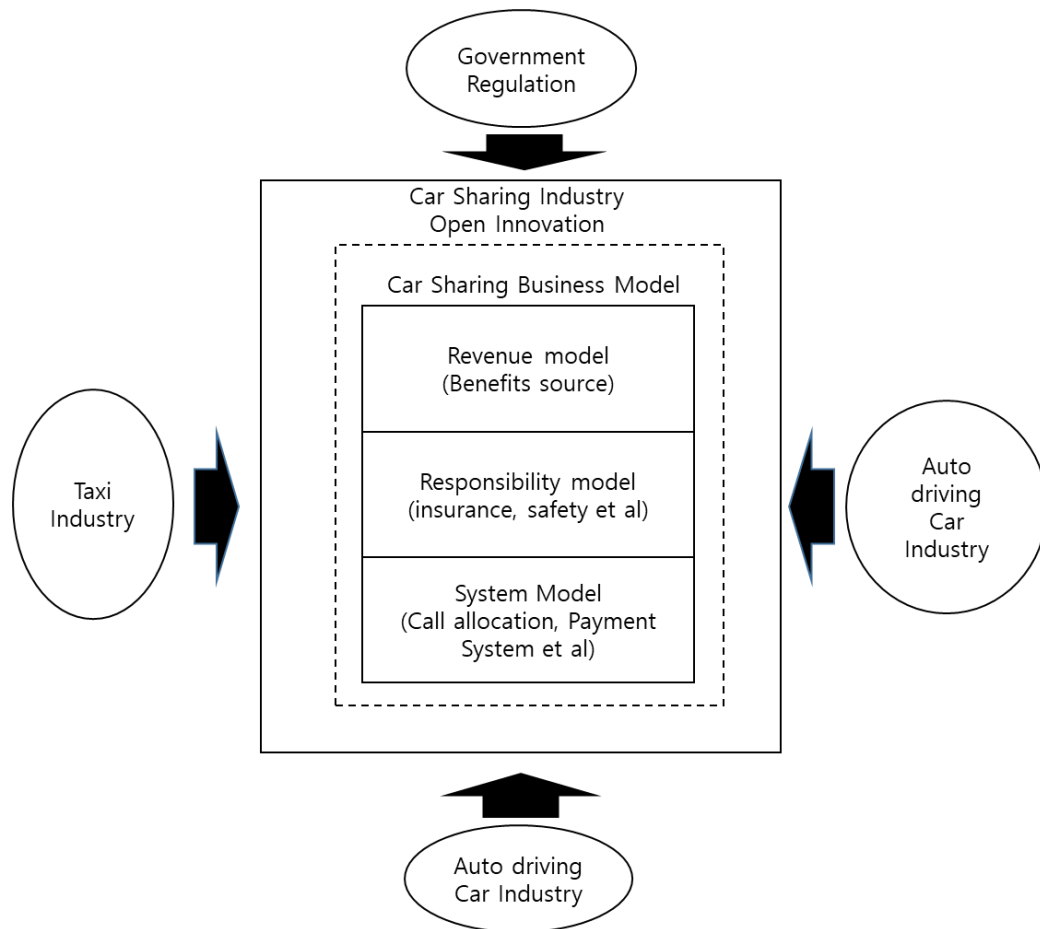

2.2. Research Framework

Figure 1 . Research Framework- Car Sharing Business Model Dynamics

3. Revenue model diversity and dynamics of Uber, DiDi Chexing, and KaKao-T

    Table 4. contents of Revenue Model

Firms	Categories of Revenue Model		
	Driver Income	Incentive for drivers	Others
Uber	-Uber X, 75% of customer Payment, one time one week payment -Uber Black, 75%, Uber SUV 72%, avery week Thursday payment -Uber Pool additional payment-No -Uber Select 70% -Uber-Eat delivery-per 3 $ -Drug delivery-100$ -Customer call increasing place, payment increase	-More 70 calls between Monday- Thursday, 100-200$, 30 calls+30 hours one week, 30 $ -Enjoying to meet several diverse new customers one week 70 calls, 200$ -Uber-Eat promotion(Monday or Friday Morning) 180$ -UberX-one week 80calls, 170-200$, but after 60 calls allocation decrease,	-Tip from customer but 95% No Tip, -Uber Express Pool destination not appearance customer penalty 5$, -Uber Seledct Airport 5$ entrance payment by Uber -Uber pool several customers, fast way usage possible -Call after 10 minutes cancel by no meeting with customer, 3$ payment

DiDi Chuxing	-DiDi X- 80% -One day maximum 12 system hours working -DiDi premier – 74%, 20% expensive fee than express-X with Income also 20% high -Didi Luxury, fee express X 5 times, Premier 3 times, total 200 cars, one day 6 photos, one month 10,000$, one time payment one week, -Didi pool, fee 10% cheaper than X, pool customers number + instance->income increase -Someone Everyday Pay	-Long distance, the share of Didi increase -AliPay case, small incentive to customer(+driver) -driver cancels from 4th, driver should pay, -Luxury booking possible, Luxury 25% driver owned car, -Didi Taxi over 7 calls one day, additional incentive call, one month 3-5 times incentive calls -Self car , Luxury, one month 20,000	-Customer (Reason) Cancel-No money from DiDi, -One day 1-2 cases, customer cancels -Long distance base fee 108 - Customer Cancer driving 1 km 1Wen, -Didi Taxi, no payment to DiDi, 3000/8200 one month from Didi -Didi X –one day 8 hours driving requirement -Uber Black, peak time call 0.1% additioanl
KaKaoT	-KaKaoT taxi call, free -KaKaoT priority Taxi call, 1,000, 40+10(premium driver)% driver -Kakao T sharing Car driver Income sharing not confirm,	-Kakao T, Proxy dirver, No brokerage cost, fee, free moving to own destination -Kakao T sharing Car, income payment time not confirmation,	-No payment to taxi driver -How much pay to Kakao T sharing car driver?

4. Responsibility model diversity and dynamics of Uberr, DiDi Chexing, and KaKao-T

Table 5. Contents of responsibility model

Firms	Categories of Responsibility		
	Insurance	Car clean, and Safety	Others

Uber	-Uber X- Individual insurance, But accidents Uber driving-Coverd by Uber, -Uber Black-Individual commercial insurance, accidents covered by individual insurance, -Uber express , Accidents Uber driving- covered by Individual insurance, -Uber Select; No commercial insurance, and no license,	-Uber Car-safe, Driver's photo, and all informations of drivers and customers, -Uber pool- woman customer, no danger, feel safe, -Uber pool; Woman-one day 4 times usage, feel safe, Just fast requirement Uber-X usage, -in Car Vomit, If driver informs to Uber, Uber pays 400 dollars to driver in advance and late receive money from customer, -In car damage, Uber pay money to driver, require payment from customer,	-Uber Black, commercial car license requirement, Uber-X, commercial insurance by individual possible, not requirement, -Uber Driver: ID, Health, Criminal record, Car, Insurance, Credit, Driver license, for 3 weeks check, - 1 year Uber license, and after then check again, -Normal Uber drivers have 2 or more jobs, -Total Uber woman driver 5% -Driver can reject customer if feel unsafe like no baby seat having baby carriage customer,
DiDi Chuxing	-Didi Driver- cover insurance by himself, -DiDi premier, Good Car, Exam, and Interview, Everyday Dress Up driver and car photo upload requirement, -Didi luxury driver, good appearance, high school or University graduation, 5 year driving expericece, Audi A6 or upper, BMW 5 or Upper, Banch E or upper, Vest, necktie, shoes 6 photoes everyday upload	-Pet animal carrying customer can not reject -5 customer can not reject, -During Didi using criminal damage, cover system by Didi -No Didi driver security system -Didi driver 10 % woman driver, no dangerious -Didi X>Didi pool, People normally user X, not pool, -Luxury, Premier, Driver in advane talking is not allowed, -	- Didi driver: driver license, insurance, under 55, criminal record, tattoo no, but no health check, -Some time DiDi platform driver, and real driver difference, looks dangerous, -High Traffic time , Uber driving should stop, -System follow up customer and customer information, good for safety, -Long distance driving, no confirmation for come back,
KaKao T	-Kakao T, a proxy driver insurance do paymwent -Kakao T, sharing Car driver insurance do payment	-No Kakao T sharing Car safety system -No Kako T proxy driver safety system	-sharing K cleaning, safety from customer confirmation system?

5. System Model Diversity and Dynamics of Uber, DiDi Chexing, and KaKao-T

Table 6. Contents of System Model

Firms	Categories of Responsibility		
	Allocation System	Payment System	Others

Uber	-Uber pool, additional customer allocation, can not reject, Uber 2 type allocations, one-driver setting destination allocation, the other-near car allocation. Basically Uber system allocate calls to drivers, Uber driver can cancel , When driver goes back home, home way calls allocating possible, -Before arrive any destination, call allocation is possible,	-Mainly in advance registered Credit Card, -Black, and Select, Water, Candy preparation, -The payment amount can be known after customer leave, Customer can pay tip when leave Long distance payment is not good to driver because the longtime is not included, Pool , in advance payment not changed -Uber X, in advance payment, no change,	-Location of Customer is not accurate, -Uber Black, expensive, in advance showing, customer not so much -Do not know the destination before customer comes in, -pool reject possible, but if accept, can use fast-way, -woman driver, pool allocation 70%, X 30%, -If customer a lot place, and time, the fee increases, -Uber pool allocation is just in big city such as New York, LA, San Francisco,
DiDi Chuxing	-Basically DiDi in 3 km allocation, Recently driver setting up allocation system added, -Didi driver can cancel, but Stars decrease, -Veteran Driver X allocation, beginning driver pool allocation, - 2 mode; selection mode, and allocation mode, selection mode in 1 month new appearance, selection mode , long distance selection possible,	-Wechat Pay, AliPay, and DiDi pay and so on, no needs Money -When Pay, customer can change payment method, -After finish driving , money comes in from Didi, If not customer pay, the customer should pay when using next Didi, -Long distance driving, Didi ration increases until 30% percent, Long distance driving includes long distance fee, -Basically never know customers payment method, Every moment can change the payment methods among in advance registered methods,	Didi premier , in advance payment, and late real payment was different, and slow payment money added, -From Wechat Calling DiDi Chuxing is possible. -After driving, directly money allocated to driver's bank, but really payment 2 days, or one time one week, Now, sometime more than 3 km allocation, -DiDi premier, distance fee+low speed fee+ long distance fee, -Didi luxury; long distance basic fee+ fast call allocation fee
KaKao T	-System allocation - full star 1 times one day, selection allocation system	-in advance payment fee, give points, after accumulation pay monet,	- customer location and direction mismatch occurs,

6. Discussion and Conclusion.

Where does carsharing work? Using geographic information systems to assess market potential(Celsor & Millard-Ball, 2007) An economic and operational evaluation of urban car-sharing(Fellows, Pitfield, & Environment, 2000) Car sharing demand estimation and urban transport demand modelling using stated preference techniques(Catalano, Lo Casto, & Migliore, 2008)

The open innovation paradox: knowledge sharing and protection in R&D collaborations(Bogers,

2011)

Peer-to-peer rental markets in the sharing economy(Fraiberger & Sundararajan, 2017)

Deep multi-view spatial-temporal network for taxi demand prediction(Yao et al., 2018)

Fluid-model-based car routing for modern ridesharing systems(Braverman, Dai, Liu, & Ying, 2017)

Thrown under the bus and outrunning it! The logic of Didi and taxi drivers' labour and activism in the on-demand economy(Chen & Society, 2018)

DEBATING THE SHARING ECONOMY.(J. J. J. o. S.-G. Schor & Economics, 2016)

Like Uber, but for local government law: the future of local regulation of the sharing economy(Rauch & Schleicher, 2015)

Co-presence Café Cultures: Kakao, Games, and Camera Phone Photo-Sharing in Seoul, South Korea(Hjorth & Richardson, 2014)

Kakao in Korea: Increasingly Shaking the Market(Park & Kim, 2016)

<Appendix >
Sharing Car (Uber, DiDi Chuxing or KaKaoT SW using Car)
Interview Half Structured Questionnaire

Part One for Driver

1) How to start to be a sharing Car driver?

What kind of process the sharing car require you to accept, and maintain you as the sharing car driver?
2) The utilizing ratio of sharing car for one month, and how many hours a day work as the Sharing car driver?

3) How about the revenue one day and a month from the Car Sharing Service?

4) How does the sharing car center arrange the call when the customers call the sharing car ? Can you as the sharing car driver select customers?

5) What's the most used payment method? Which payment method you like most?

6) Which do you like most among functions of the sharing car system?

How about the service which the sharing car provide the drive including insurance, safety, car care and so on?
7) How about the weakest function of the car sharing system which you think that it should be improved?

8) At what time do you do the sharing car drive among 24 hours?

9) what kind of customers do you like to provide the service most?

※ In addition to these, we will call the sharing car driver, and measure arriving time, their attitude, their requirement of payment, and all the use process of the car sharing service which is provided by the sharing car.

Part Two for Car Sharing Industry Regulating Government Agency
1) How to start to permit the car sharing service, and make the policy and laws? Like in order to supply the taxi shortage? Or something else? Please introduce more details about the permission of

car sharing policy including the permitting condition of the providing car sharing service.

2) In the future, not only the car sharing and now the existing sharing, do you have some other ideas about the sharing industry?

3) Do you have any episode in the process of permitting the car sharing service?

4) Did you invest any domestic or international Car sharing economy research project?
If then, how was the results?
If not, do you have any plan to invest in the car sharing research project?
5) We are organizing international Research Project about "Sharing Economy, Car Sharing Industry, and New business model development for sharing economy, and car sharing industry".

Would you please join this research project?
Part Three for Car Sharing Service Providing Firms
1) Please introduce the foundation process (Llike M&A?) briefly, and the history as well as the development.

2) Please introduce the Business model of the car sharing service of your company, like the platform of taxi, deliver service and nurse calling and etc.

3) At first, when starts the car sharing industry, what is the barrier? And how does your company conquer it and please introduce some knowhow.

4) Please introduce the payment system of your company. And the corporation with its affiliated companies, (like WeChat, Alibaba, KaKao, PayPal, or Credit Card companies and so on)

5) How about the market situation of your car sharing company and How about sales?

How do you think about the future market prospects of car sharing industry?
Please introduce right now and future competitors.

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