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Master Degree Project in Logistics and Transport Management

Crowdsourced Logistics – Its Development and Potential

A case study of JD Crowdsourced Logistics in China

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Abstract

With the rapid growth of O2O (online to offline) business, the existing logistics models cannot meet the demand of dealing with the random, decentralised orders with their high timeliness requirements. Therefore, the appearance of crowdsourced logistics, such as the case project - JD crowdsourced logistics, is identified as a potential solution to meet such demand. When compared to traditional logistics models, crowdsourced logistics is quite different, which has led to various debates and worries about it. Exactly what the new business model looks like in reality, and how we should look at its future regarding its present situation is identified as an interesting topic by the researchers.

Therefore, the purpose of this research is focussed on gaining a deep understanding of crowdsourced logistics, as well as using the example of JD crowdsourced logistics to analyse whether there is a place for crowdsourced logistics and what the status of crowdsourced logistics is in China. Based on that, the research objectives and questions were determined as: 1. Gaining a deep understanding of the concept of crowdsourced logistics. 2. How is crowdsourced logistics currently implemented in China? 3. What are the prospects of crowdsourced logistics in China?

In order to find answers to these questions, a case study was identified as the best research method, and interviews were determined to be the main research strategy for the research. Not only was secondary data from previous research and other online sources of information collected for frame of reference, but primary data through an interview with Mr. Wang, the first product manager for JD crowdsourced logistics, was also gathered for the empirical study section. Further, both the PESTLE and SWOT models were pursued for the comprehensive analysis of the gathered data, so that the conclusion could be presented finally. Following the guidance of scientific research, the reliability and validity of the research can be confirmed.

As this research found, JD crowdsourced logistics made significant achievements during its one year of implementation. The value it brings are irreplaceable for O2O

business at this current stage. But in the meantime, some risks associated with it are significant and hard to avoid. Depending on the current development situation, the future of crowdsourced logistics is full of opportunities and threat. Finally, some general recommendations are presented for potential participants in the crowdsourced logistics industry.

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1. Introduction

In this chapter, the researchers will present a short description of the overall thesis, firstly by giving a basic background of the concept of crowdsourcing. Later, the concept of crowdsourced logistics will be discussed briefly. Afterwards, the authors will also present theoretical problems as well as the practical issues in the area of crowdsourced logistics. Then, both the objectives and research questions will be shown in the later part of this chapter. Last but not least, since China is the target region of this research, a brief description of Chinese crowdsourced logistics development will be laid out at the end of this chapter as well.

1.1. Background

1.1.1. The Rise of Crowdsourced Logistics

With the rise of the utility of the Internet, online to offline (O2O) business practices have become more and more commonplace in people's daily lives. In the O2O business model, people select, purchase and even pay online through the internet, and what they order from their computer or smartphone is delivered to their homes (Lin et al., 2013). What this business offers to customers is convenience and a simple purchasing experience with easier access. That is also why O2O business is attracting more and more people nowadays. Due to its rapid development, logistics in O2O businesses have become key. How can one achieve increased shopping cost reductions while improving delivery efficiency at the same time? In aims of doing so, many logistics or e-commerce companies, such as Wal-Mart and DHL have begun to try a new type of business model which was known as 'crowdsourced logistics' a few years ago (O'Reilly, 2014).

What is 'crowdsourced logistics'? In order to understand it, we should first figure out the definition of 'crowdsourcing', and how it differs from ordinary outsourcing. The first time the word 'crowdsourcing' was proposed was in Jeff Howe's article 'The rise

of crowdsourced', from *Wired* magazine in 2006, which described a new business model: utilising the Internet to assign the work discover new ideas or solve technical problems. As O'Reilly (2014) presents, the most basic function of this business model is the concept of sharing, through the use of online systems, combining underutilised resources together with real demands. Put simply, according to Howe (2006), crowdsourcing is about tasks and issues that are given to uncertain groups to solve, while outsourcing assigns them to predetermined individuals.

Through the use of such new business practices, companies can control via the Internet, while taking advantage of the creativity and other capabilities of their volunteer army (crowds), who are able to complete tasks and would like to work on it during their spare time for small remuneration, or perhaps for their future prospects (Howe, 2006). Especially for the software and service industries, crowdsourcing provides a new way to organise labour (Howe, 2006).

As the development of a type of crowdsourcing, crowdsourced logistics is aimed at creating a cost-effective logistics system through the application of technology to harness idle human resources for work on a specific project within a specific timeframe. Since this concept was only proposed in recent years, it is still a new word to most of people. Until recently, there have only been a few companies which have launched crowdsourced logistics services. That is to say, such concepts still need a long period of growth.

Depending on the current implementation of crowdsourced logistics, some potential problems are hard to ignore, including: cargo security, legal liability, debates and corporate reputation etc. Lu & Xu (2013) show doubt over the service quality of crowdsourced logistics. Moreover, as the article presents, in the case of China, due to unsound credit systems, it could be harder for companies to select qualified 'crowd' members to reduce delivery risks, due to the lack of credit information. On the other hand, according to Chang & Xiao (2010), with the rapid development of ecommerce, crowdsourced logistics, with its outstanding performance on convenience with last-mile

deliveries, is gaining increased attention, which is identified as a potential future trend. What is more important, the growth of crowdsourced logistics has had a profound impact on the traditional express industry as well (Chang & Xiao, 2010).

Crowdsourced logistics is able to pair demands and “free” capabilities. Through such ‘pairing’, there is the possibility of achieving a win-win situation for all participants (users, suppliers, platforms etc.). By the utility of crowdsourced logistics, companies may save on logistics costs as well as solve last-mile issues (Chang & Xiao, 2010). Especially since to date, demands for e-commerce have been rapidly growing, decentralised flexible delivery solutions are desired. Therefore, the status of crowdsourced logistics is becoming increasingly important in O2O business.

1.1.2. Crowdsourced Logistics Implementation in China

The concept of ‘crowdsourced logistics’ only began to spread in China recently. Companies focus on its functions for last-mile issue solutions, and its flexible and unlimited capacity for delivery, dealing with huge demands, especially during holidays. Further, since the growing demands of fresh food home-deliveries, this function of crowdsourced logistics is also attracting companies (Lu & Xu, 2013). Besides the previously mentioned risks and considerations, regulatory issues may also hinder the development of crowdsourced delivery (Chang & Xiao, 2010). It was reported that in 2014 all courier services such as Shanghai, Tianjin, Henan and Hubei were stopped in some provinces and cities. The reasons behind this, are companies without the approval of the provincial government, which will be officially open for business (Lu & Xu, 2013).

In addition, some provinces and postal administrations stated that they require each local courier company employee to hold a license, but most crowdsourced logistics companies cannot meet this standard (Lu & Xu, 2013). Moreover, there are many part-time employees for crowdsourced logistics, yet there is a nationally accredited training system, and different levels of service standards for each platform. The Government

will increase regulatory uncertainty in the crowdsourced logistics market, no one can ensure that the government will formulate a clear standard to support its development.

1.1.3. Case Company

The Jingdong (JD) Group, formerly known as '360Buy', which is a B2C type e-commerce company in China founded by Mr. Liu Qiangdong. In 2014, the JD group joined the Nasdaq in the United States as China's first US-listed large comprehensive electronic business platform. During the first quarter of 2015 the electrical dealer market share of JD in China was 56.3%. JD currently sells electrical appliances, digital communications devices, computers, as well as clothing accessories, books, food and other goods in its household department stores. JD crowdsourced logistics was established based on the concept of a sharing economy: maximising the sharing of excess and underused assets. JD crowdsourced logistics uses the activities that used to be outsourced to a large pool of individuals. The Members of this pool, whether individuals or groups, can direct resources to just the right place where they are needed. JD crowdsourced logistics uses the internet or mobile phone applications in their courier service. The service uses GPS to find couriers within 3-5km to digitally match demand with supply.

Today, customers want fast delivery, they want their goods to be delivered at the same time they ordered them. Traditional and e-commerce retailers are trying to provide this fast delivery service now. Therefore, a few companies have started to form partnerships with crowdsourced delivery platforms and JD even started its own services. JD crowdsourced delivery platforms are trying to gather customers who need things delivered via independent couriers, or delivery staff who can help. JD crowdsourced delivery makes use of idle human resources to complete tasks that would otherwise require massive amounts of work and long logistical lead times.

1.2. Problem Area

With the expansion of O2O businesses and the growth of crowdsourced logistics companies, this business phenomenon has gained increasing levels of attention. More and more researchers have started to realise the potential of it for the near future. Even though, at this present stage there is still a lack of theories in this area. Most researchers are focussed on the concept of crowdsourcing (Gassenheimer et al., 2013; Shenk & Guittard, 2011; Sivula & Kantola, 2014 etc.). Some researchers like Nowicka (2014) have identified crowdsourced logistics as being an integral part of the ‘smart city’ of the near future, but they only mentioned the concept without any further discussion. Only a few researchers like Mehmman et al. (2015) have introduced the basic knowledge of this concept clearly, but the information is still insufficient. In China, despite several articles that have discussed the implementation of crowdsourced logistics, the discussion lacks the support of theoretical frameworks, while the results they found are superficial and finite. Such a background leads to gaps, preventing a comprehensive understanding of the concept of crowdsourced logistics and descriptions of how it is implemented in reality, which need to be presented.

1.3. Purpose and Research Questions

The purpose of this study is to gain a deeper understanding of crowdsourced logistics. Using the case study of JD crowdsourced logistics, this thesis will analyse where lays and what is the future of crowdsourced logistics in China.

In this research, researchers will present details about the concept of ‘crowdsourced logistics’. By presenting the case of JD crowdsourced logistics, the general implementation situation, as well as the prospect of crowdsourced logistics in China will be discussed.

Due to the purpose of this research, the research questions (RQ) and objective (RO) are as follows:

RO1: Gaining a deep understanding about the concept of crowdsourced logistics.

RQ1: How is the current implementation of crowdsourced logistics in China?

RQ2: What are the prospects of crowdsourced logistics in China?

1.4. Outlined Structure

This thesis is divided into 6 chapters from beginning to end, Fig. 1.1 provides a direct image of its structure.

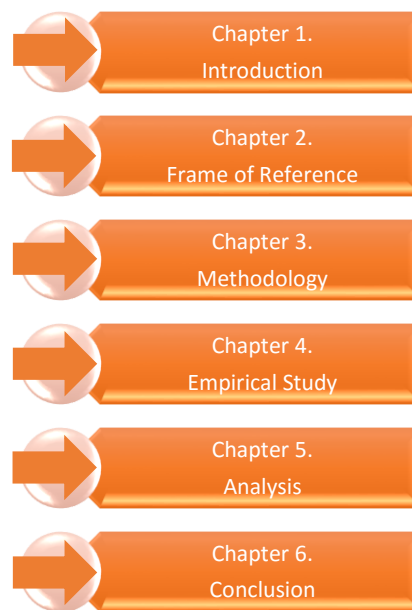


Fig 1.1. Outlined Structure (Self structured)

Chapter 1 — In this chapter, the researchers briefly introduce the theme of this thesis and provide a short background which relates to crowdsourced logistics. It defines the problem through reference to papers. This chapter provides a focal point to define and limit scope, as well as outline structure. Finally, the problem definition and description of the research are given, as well as the status and development of crowdsourced logistics in China

Chapter 2 — This chapter provides a reference to the papers related to the research framework used in this article. Literary criticism frames of reference are presented as well as selected theoretical analyses of empirical research. Then each will concern the theoretical framework of each dimension.

Chapter 3 - In this Chapter, the researchers explain the research strategy and research methods that have been used in the thesis. They mention methods and rationalise the use of this research strategy. Details about data collection are presented in this chapter as well.

Chapter 4 - This chapter is a description of the empirical research in this thesis. Researchers describe the image of industry-related issues relating to the research and give an overview of the business and its trends, the main purpose of this chapter is to capture and present case studies as a whole.

Chapter 5 - This chapter will discuss the empirical study and analyse the results. The results will be analysed using the methods referenced in chapters 2 ,3 and 4.

Chapter 6 - In this chapter, the researchers will summarise the whole thesis, and the researchers will discuss the purpose and results of the answers. The researchers will also will put forward some advice for future research.

2. Frame of Reference

In this chapter, the researchers will firstly present the concept of the sharing economy as the basis of crowdsourcing business models. Through a comprehensive description of crowdsourcing, the concept of crowdsourced logistics will finally be presented. Researchers would like readers to gain comprehensive knowledge in the area of crowdsourcing which is strongly linked to the later parts of this thesis. Through analysis of the secondary data that the authors gathered for frame of reference, partial answers to research objective 1 and research question 3 could be provided in the end of this chapter. Further, through comparative analysis of the information from the empirical study for the case project – JD crowdsourced logistics, answers to these two questions will be presented at the end of this thesis.

2.1. Sharing economy

2.1.1. Definition

When we are talking about things which have developed rapidly in recent decades, there is no doubt the internet would be on the list. The gradual evolution of the internet involved computers, mobiles and other electronic devices, and even everyone's social networks (Puschmann & Alt, 2016). As people are increasingly integrated with the internet, their mind-set has been changed with each passing day. More specifically, the usability is more effective than ownership (Böckmann, 2013). Such a background led to the appearance of a 'sharing economy'. The sharing economy is a familiar concept in business. Indeed, both in B2B (business to business) and B2C (business to consumer) domains, sharing economies are a common phenomenon, such as the sharing of machinery in agriculture or public libraries (Puschmann & Alt, 2016). Whereas, this research is going to discuss the sharing economy in C2C (consumer to consumer) domains. More clearly, in O2O business, which was proliferated from two previous domains and therefore, leads to a new business model. Before we understand the

concept of the sharing economy, we should firstly figure out the definition of C2C (without ecommerce) business. As Puschmann & Alt (2016) outline, in C2C business, there are no clear boundaries between the roles of service producers and consumers. Any individual or organisation could be a consumer or producer, or even a combination of both under such a business model.

Based on this, it is easier to understand what the sharing economy means. Although the concept of 'sharing economy' is still not a common concept, the first sharing economy business actually appeared several decades ago. In 1995, eBay, the first second-hand ecommerce platform was created (Schor, 2014). Afterwards, the concept of collaborative consumption (CC) showed up and was defined by Hamari et al. (2015) as the 'peer-to-peer-based activity of obtaining, giving, or sharing the access to goods and services, coordinated through community-based online services.'

According to Puschmann & Alt (2016), the term 'sharing economy' was first mentioned in 2008, which means: sharing, exchanging and renting resources for collaborative consumption, instead of owning them. Even now, the concept is still growing and developing, so that there are several different understandings of it in various articles. Böckmann (2013) believes that the shared economy is a business model to help individuals share their resources and use others' at any time they need, through peer-to-peer services. Whereas, in the article 'On the sharing economy' Nash & Commons (2015) take the view that the sharing economy is a digital platform comprised of economic activity that is peer-to-peer, or person-to-person. On the other hand, Martin (2016) believes the sharing economy describes 'the growing phenomenon of citizens freely sharing skills and knowledge in collaborative online endeavoured.' Martin (2016) also presents the example of Wikipedia as one of the successes of the online, open-source paradigm, which was created based on such concepts. It is necessary to highlight that such business models should rely on the development of online technologies, since most of the activities are implemented based on online platforms. Recently, as Böckmann (2013) mentioned, because of the increasing growth of such community

practices, the C2C sharing economy has already become a new business model.

2.1.2. Motivation

How could the sharing economy achieve such rapid growth? To explain this question, Böckmann (2013) presents a comprehensive picture about the sharing economy's drivers, which consist of three aspects: societal, economic and technological (see Fig 2.1). From the societal aspect, because of the increasing population of the world, the benefits of high population concentrations show up, providing more possibilities and desires for the growth of sharing economies. What's more, with the development of the overall society, the topic of sustainability gains increased attention. Whereas, as many researchers found out (Böckmann, 2013; Puschmann & Alt, 2016; Cohen & Kietzmann, 2014; Martin, 2015; Schor, 2014 etc.), business models like the sharing economy are able to reduce consumption as well as promote sustainable development, which will be discussed in detail later. Some researchers even see it as one of the unique aspects that promote the development of sharing economies. Thirdly, there is no doubt that desire for communication is part of human nature, as well as sharing behaviour. According to the view of Puschmann & Alt (2016), 'sharing economy links social network research with the domain of online social commerce as it is established in C2C interactions.' That also one of the motivations behind the sharing economy's growth. Such a point of view is also supported by Schor (2014), who finds most online sharing platforms always advocate social connection as a core outcome to attract more participants. Last but not least, generational Altruism is also an important reason.

Another motivation is the economic aspect. Böckmann (2013) believes because of the current global situation, both enterprises and individuals own more things than they could consume, while the flexibility of ownership (or non-owners) provides another potential possibility to obtain more financial benefits. In addition to the enhancing investments in such areas, there should be no surprise over the rapid growth of sharing economies. Nevertheless, the sharing economy provides more economic benefits for

not only companies, but also customers. Such win-win situations are desired by almost everyone. This argument is supported by many articles as well (Böckmann, 2013; Puschmann & Alt, 2016; Cohen & Kietzmann, 2014; Martin, 2015; Schor, 2014 etc.).

The final aspect is the technological motivation. As mentioned above, the creation and growth of the sharing economy is based on the development of technologies. That is also why the technological aspect should be viewed as one of the most important fundamental motivations behind the sharing economy. Böckmann (2013) posits that online social networks provide a more effective and efficient way to match demands and supplies. The increasing popularity and broader functionality of smartphones promotes the convenience of the utilisation of sharing economies. What is more, the development of online payment systems guarantees safe payments for use in sharing economies.

2.1.3. How It Works?

In order to understand the concept of the sharing economy, it is important to get to know how it works in general. Hanson (2016) presents a figure detailing how Uber works, which could be used to summarise the general business model of sharing economy companies, which is shown in Fig.2.2. According to the figure, online platforms link demands from markets and services from providers directly. Nevertheless, they also offer a set of infrastructure that enhances the overall supply quality which is paid for by the producers. Consumers pay for the service through the platform, and when the service is finished and this is confirmed by the consumers, money will be transferred to providers. Last but not least, both consumers and providers can give and gain feedbacks from each other, so that comprehensive data on each individual can be accrued which can be shown to others and guide their further business activities.

2.1.4. Pros and Cons

Both the rapid development of the sharing economy and the increasing attention it has

received from society are attributed to the benefits it brings. Indeed, the various advantages of the sharing economy are recognised by many researchers. Table 2.1. summarises all profits of the sharing economy, gathered from relevant articles by researchers.

According to Böckmann (2013), as the result of its research, the most important reason that people tend to pursue the sharing economy is because of the financial benefits it brings. It helps companies save money ‘either through earning money with ownership or the flexibility of non-ownership.’ In more detail, the sharing economy leads to a new low cost supply chain where producers will be able to provide goods or services directly to customers without any other nodes. Therefore, both producers and customers could cut costs (Schor, 2014).

Secondly, Böckmann (2013) also points out that the sharing economy contributes to sustainability. This is supported by Puschmann & Alt (2016), who believe the sharing economy could reduce waste. While, Martin (2015) also argues that the sharing economy ‘is a pathway to [a] decentralized, equitable and sustainable economy’. As Schor (2014) explains, compared to traditional business models, the sharing economy consumes less resources whilst helping customers access products and services. What’s more, the sharing economy model will promote the expansion of second-hand markets, reducing demand for new products. In these ways, footprints could be decreased. On the other hand, Cohen & Kietzmann (2014) provide a more comprehensive picture which consists of four key effects that the sharing economy could contribute to sustainability: 1. Fewer trips, 2. Modal shift, 3. Distance reduction and 4. Increased efficiency.

Another positive outcome is the increases in social connections. As Schor (2014) mentioned, the desires to communicate in the overall society is part of human nature. Whereas, through the sharing economy, people can more easily communicate with others. Meanwhile, the flexible nature of the sharing economy drives its growth as well.

Last but not least, as the sharing economy relies on the development of digital technologies, through the growth of the sharing economy, the development of digital technologies gains more attention and effort, which reduces information asymmetry at the same time (Cohent & Sundararajan, 2015).

Table 2.1.

Benefits of The Sharing Economy			
	Content	Source	Similar point of view
1	Save Money	Böckmann, 2013	Schor, 2014, Martin, 2015
2	Sustainable	Böckmann, 2013	Schor, 2014, Martin, 2015, Cohen & Kietzmann, 2014, Puschmann & Alt, 2016
3	Convenience (Flexibility)	Böckmann, 2013	
4	Increase Social Communication	Böckmann, 2013	Schor, 2014
5	Information Asymmetries Reduction	HEINONLINE	

It is obvious that all things will have both profits and risks, while we are talking about the sharing economy, the risks are also hard to ignore. Table 2.2 shows the main risks of the sharing economy, which consist of social, as well as quality and sustainability aspects.

The first risk is the environmental issue. As Schor (2014) presents, despite the potential that the sharing economy could contribute to emission reductions, as was discussed above, the environmental situation could be worsened. This is because of a concept called the ‘Rebound Effect’, which was introduced by Wijkman & Rockström (2012). This concept means that, increasing the efficiency of resources will save more resources for society as a whole. But most companies will use the rest of these resources for business expansion, which will only enhance the use of resource. So energy demands will increase over time. Therefore, according to this theory, overall emissions after pursuing the sharing economy could be increased.

In addition to the unsuitable society situation, many regulation problems show up. For instance, for the further growth of the sharing economy, everyone in society should be accustomed to sharing behaviours, as well as ignore issues of ownership to an extent, which means reinforcing the Neoliberal Economic Paradigm and gradually becoming a sharing society. What's more, since the sharing economy is still a new concept for society, with the expansion of it, a series of risks led by unregulated and relative dark sides of it become increasingly significant and important and gain more and more focus (Martin, 2016). For example: unfair trading (which could happen to both the buyers and providers), illegal market places, the impact on the labour market (Malhotra & Alstynne, 2014) (the possibility to break down Unions, Mitchell, 1987), and unlicensed worker problems, as well as tax avoidance problems etc.

Lastly, due to its open source nature, anyone could contribute their efforts to the problems they suppose they are able to solve, which means no one could ensure the quality of contributors. Such a situation could easily result in large amounts of useless, low quality contributors, which might have a significant negative impact on the quality of the sharing economy.

Table 2.2.

Risk of The Sharing Economy			
	Content	Source	Similar Point of View
1	The rebound effect higher the emissions	Schor, 2014	
2	Unsuitable society and unregulated market places	Martin, 2016	Malhotra & Van Alstynne, 2014
3	Unequally service quality	Cohen & Sundararajan, 2015	
4	Labor risk	Mitchell, 1987	

2.2. Crowdsourcing

With the development of the sharing economy, the concept of crowdsourcing which is based on the former, has shown up in recent years. As a new business model, crowdsourcing nowadays is an increasingly common concept in industry.

2.2.1. Definition

The definition of crowdsourcing is still developing, and there is still not a common definition of the concept. Table 2.3 summarises various definitions of crowdsourcing given in different articles.

The concept of ‘crowdsourcing’ was first mentioned by Howe (2006), where it was seen as a new business model. Somehow, the definition of this concept was very vague, this is also why there are so many explanations and summaries of the concept throughout this article. Two years later, Howe (2008) published the first book that consisted of many examples of companies which had implemented various types of crowdsourcing. The contents of that book are extremely useful. Howe also presented a clear definition of crowdsourcing, which was described as *‘the act of taking a job traditionally performed by a designated agent (usually an employee) and outsourcing it to an undefined, generally large group of people in the form of an open call’*. In 2009, with deeper research on the issue, the definition was updated by Howe again. Further, with the development of this research area, more researchers tried to define the concept of ‘crowdsourcing’ with their own words and points of view.

In our point of view, and also as a summation, crowdsourcing is a new model based in and needing to be executed through an online platform. Unlike traditional business models, where companies have problem which need to be solved, they can upload such information to online platforms, so that everyone in society is able to contribute their efforts to solving it, with lower costs, wider visions and perhaps higher quality than in-house solutions.

Table 2.3.

Definition of The Crowdsourcing		
Time	Definition	Source
2006	Crowdsourcing represents the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call. This can take the form of peer-production, but is also often undertaken by sole individuals. The crucial prerequisite is the use of the open call format and the wide network of potential laborers.	Howe, summarized by Shenk & Guittard, 2011. supported by Pual 2009
2006	A new web-based business model that harnesses the creative solution of a distributed network of individuals through what amounts to an open call for proposals	Howe, summarized by Barbier et al. 2012
2006	An effort to leverage the expertise of a global pool of individuals and organizations, often across disciplines and sectors, generally enabled by web, to as quickly and cost-effectively as possible develop and implement creative solutions to innovation challenges	Howe, summarized by Marjanovic et al. 2012
2008	Crowdsourcing is the act of taking a job traditionally performed by a designated agent (usually an employee) and outsourcing it to an undefined, generally large group of people in the form of an open call	Howe
2008	The intentional mobilization for commercial exploitation of creative ideas and other forms of work performed by consumers.	Behrend et al.
2009	The application of Open Source principles to fields outside of software.	Howe
2009	Crowdsourcing describes a process of organizing labor, where firms parcel out work to some form of (normally online) community, offering payment for anyone within the 'crowd' who completes the task the firm has set	Pual
2011	The word of Crowdsourcing is a compound contraction of Crowd and Outsourcing. Crowdsourcing means outsourcing to the crowd.	Shenk & Guittard
2011	Outsourcing task usually performed by people closely connected with an institution to a 'crowd' or people outside the institution	Marjanovic et al.
2011	The paid recruitment of an online independent global workforce for the objective of working on a specifically defined task or set of tasks.	Behrend et al.
2013	Business crowdsourcing as a business entity's 'use of an enthusiastic crowd or loosely bound public' to voluntarily provide solutions via online technology to the organizations' problems and to identify innovations and market opportunities.	Gassenheimer et al.
2014	Crowdsourcing is a task taking place inside or outside of the organization in an undefined crowd. Crowdsourcing can be implemented.	Sivula & Kantola

2.2.2. Characteristics

Table 2.4 shows the characteristics of crowdsourcing which are identified by various researchers. Through their explanations, the most significant point should be the use of the ‘undefined crowd’ in society, which means the possibility of getting access to much bigger and stronger resources for problem-solving or fulfilling tasks. What’s more, in crowdsourced online platforms, everyone can play various roles, which means a man could be both problem-solver and problem bringer. When discussing the specific question, it is possible for crowd members to gain different points of view from each other to solve their own problems as well. Other characteristics concern the use of digital technologies and its costs etc.

Table 2.4.

Characteristics of The Crowdsourcing		
Time	Characteristics	Source
2011	Crowdsourcing can be a vehicle for recruiting respondents that are more representative of the working adult population than is a university participant pool.	Behrend et al.
2012	Crowdsourcing can be used by a variety of players for a non-commercial purpose.	Marjanovic et al.
2012	A task or problem is outsourced to a much wider pool of organizational and/or individual innovators.	Marjanovic et al.
2012	Solvers in crowdsourcing can open up more possibilities for applying existing knowledge, scientific and technological advances from one field to provide a solution to the problem of another field. See problems with fresh eye.	Marjanovic et al.
2012	Is not only about finding a specific solution to a specific problem, but also potentially allows for re-using, adapting and applying existing solutions to new problems.	Marjanovic et al.
2012	Stakeholders can have various roles in the crowdsourcing process and the reward structures may also differ.	Marjanovic et al.
2014	Crowdsourcing is about collecting result from the crowd.	Sivula & Kantola

2.2.3. Pros & Cons

The use of crowdsourcing brings value for companies in various aspects. The main

sources of value of crowdsourcing presented by previous articles are shown in Table 2.5. Through this table, most articles agree that the most important impact of crowdsourcing is its financial benefits. Gassenheimer et al. (2013) believe that the economic value of crowdsourcing comes from the crowd which can replace customer service personnel, hence cutting costs, as well as decreasing transaction costs to the market. Such a point of view is supported by Shenk & Guittard (2011), who argue that crowdsourcing helps companies achieve lower costs, just like outsourcing does. Another significant advantage is the higher quality of services or goods it can offer to customers. Due to the large size of the crowd dedicated to a specific problem or task, there would be a high possibility that more professional people with a lot of experience could work together on the same task, so that the quality could be improved over doing it in-house (Gassenheimer et al., 2013). Especially where a company faces a complex task with limited time, crowdsourcing could be a better solution than others (Shenk & Guittard, 2011; Whitla, 2009 and Alonso et al., 2008). This is also why crowdsourcing would lead to a higher degree of efficiency than traditional business models. Fourthly, due to the open nature of crowdsourcing, anyone can access a certain task and bring their own vision, some may not have any relevant knowledge in the specific area, and so they might provide some new ideas or perspectives. In this way, companies could gain wider visions for problem solving, while achieving social communication in the meantime. Other benefits consist of dealing agencies with lower risk; obtaining a large amount of new knowledge within a short time; as well as enabling one to adopt new digital techniques faster.

Table 2.5.

Pros of The Crowdsourcing			
	Content	Source	Similar Point of View
1	Financial Benefit	Gassenheimer et al. 2013	Shenk & Guittard, 2011, Whitla, 2009, Alonso et al. 2008
2	High Quality	Gassenheimer et al. 2013	Shenk & Guittard, 2011, Behrend et al. 2008, Alonso et al. 2008
3	Efficiency	Gassenheimer et al. 2013	Whitla, 2009, Alonso et al. 2008
4	Wider Visions and More Social Connection	Behrend et al. 2008	Gassenheimer et al. 2013, Barbier et al. 2012
5	Deal With Complex Problem	Whitla, 2009	Shenk & Guittard, 2011
6	Promote Innovation	Gassenheimer et al. 2013	
7	Deal With Agency	Shenk & Guittard, 2011	
8	Gaining Big Amount of New Knowledge With Short Time	Gassenheimer et al. 2013	
9	Network Externalities	Shenk & Guittard, 2011	

On the other side of the coin, the risks of implementing crowdsourcing are also various and hard to ignore (see Table 2.6). First of all, as Gassenheimer et al. (2013) present, just like outsourcing, when a company pursues crowdsourcing, it must lose some control over the overall process. That also means higher uncertainties. For instance, the uncertainty involved with the population (Alonso et al., 2008); the difficulties of maintaining a working relationship with workers during the overall project (Marjanovic et al., 2012); and some people may even sabotage the project, which is hard to control for (Marjanovic et al., 2012). All in all, the process could be hard to control, which sometimes also leads to the questioning of the qualities of such projects (Gassenheimer et al., 2013).

Moreover, despite the fact that the use of crowdsourcing is able to save on costs, sometimes, when the ‘crowd’ feels they are exploited and given unequal payment (Shenk & Guittard, 2011), or there is no guarantee of remuneration for their efforts

(Marjanovic et al., 2012), it can easily cause a lack of contributors. On the other hand, even where there are large numbers of contributors, due to the open nature of crowdsourcing, it is quite possible to accrue huge amounts of irrelevant knowledge (Whitla, 2009).

What is also important is the request for a definition of the task (Shenk & Guittard, 2011). As mentioned above, unlike with in-house solutions, the ‘crowd’ is not familiar with companies, and also unlike with outsourcing, some members do not even have enough related professional knowledge. Therefore, they may have different understandings of the problems (Barbier et al., 2012), and may not know the real aims of the company, since it’s problems are not their own (Marjanovic et al., 2012).

Others risks consists of legal conflicts (Whitla, 2009) which are similar to the unregulated situation of the sharing economy, and the risk of exposing the business secrets of the company (Marjanovic et al., 2012).

Table 2.6.

Cons of The Crowdsourcing			
	Content	Source	Similar Point of View
1	Risk of Lower control over	Gassenheimer et al. 2013	Marjanovic et al. 2012
2	Disturb of irrelevance knowledge	Whitla, 2009	Gassenheimer et al. 2013
3	Lack of Contributors	Gassenheimer et al. 2013	Shenk & Guittard, 2011, Marjanovic et al. 2012
4	Low Quality	Gassenheimer et al. 2013	
5	Request definition of The Tasks	Shenk & Guittard, 2011	Barbier et al. 2012, Marjanovic et al. 2012
6	Higher uncertainties	Gassenheimer et al. 2013	Alonso et al. 2008, Marjanovic et al. 2012
7	Legal Conflicts	Whitla, 2009	
8	Risk of Exposing Future Plan	Marjanovic et al. 2012	

2.2.4. How It Works

As a new business model, crowdsourcing companies actually play the role of online platforms. They generally work similarly to the process of the sharing economy. On one hand, they collect existing problems and post them on the internet to enable the ‘crowd’ to see and put effort into it. On the other hand, they select and integrate results from the ‘crowd’ as a set of effective solutions, deliver to the problem owner, and then pay the ‘crowd’. This clear process which combines several articles’ outputs is shown in Fig.2.3.

2.2.5. Differences with Outsourcing

After gaining a clear understanding of the concept of crowdsourcing, people might wonder, how it is distinct from the existing ‘outsourcing’ business model? To answer this question, Marjanovic et al. (2012) present a clear table that explains this problem with a comprehensive point of view, as shown in Table 2.7.

Table 2.7. (Source: Marjanovic et al, 2012)

Differences Between Crowdsourcing and Outsourcing			
		Outsourcing	Crowdsourcing
Who is involved	Seeker	<ul style="list-style-type: none"> Public, private, third-sector player with an innovation need. 	
	Solver	<ul style="list-style-type: none"> Defined contractor either identified through open-competition for a contract, or without open competition. 	<ul style="list-style-type: none"> Anyone can be a potential solver. Large pool of independent, decentralized solvers.
Roles	Seeker	<ul style="list-style-type: none"> Problem definition. Setting out contractual agreement 	<ul style="list-style-type: none"> Specifying challenges and making them know to public. Selecting 'winners' and decide reward (directly or via a broker)
	Solver	<ul style="list-style-type: none"> Solves specified problem. 	
Risks and risk management	Seeker	<ul style="list-style-type: none"> There can be opportunistic behavior and trust issues, but contractual specifications tend to mitigate these. Reputation of solver, experience and prior relationships between seeker and seeker often play a role in mitigating risk. Clear format for compensating contributors specified at onset, and who will be compensated clear at onset. 	<ul style="list-style-type: none"> No guarantee of a solution. Risk of exposing competitive intelligence. Seeker can use a broker to manage risk, and also pays-for-performance only. Formal terms of engagement and legal frameworks.
	Solver	<ul style="list-style-type: none"> Reputation of solver, experience and prior relationships between seeker and seeker often play a role in mitigating risk. Clear format for compensating contributors specified at onset, and who will be compensated clear at onset. 	<ul style="list-style-type: none"> Risks in terms of upfront investment of time without guarantee of reward for solver. Clear format for compensating contributors specified at onset, but who will be compensated unclear at onset.
Reward/incentive	Seeker	<ul style="list-style-type: none"> Solution which can drive competitive advantage. 	
	Solver	<ul style="list-style-type: none"> Financial and/or reputational 	
Intellectual Property	Seeker	<ul style="list-style-type: none"> Generally yes (depends on agreements with contractor) 	<ul style="list-style-type: none"> Almost always yes.
	Solver	<ul style="list-style-type: none"> Maybe (maybe, depends on agreement with contractor) 	<ul style="list-style-type: none"> No.

2.3. Crowdsourced Logistics

With the rapid development of urban areas all over the world, more and more researchers realise the day of the ‘Smart City’ is not so far away. Nowicka (2014) defines smart cities as an ‘investment in human and social capital and traditional (transportation) and modern (ICT-based) infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory government’. Therefore, it is easy to see the importance of ICT for the development of an overall smart city. For achieving a smart city, Nowicka (2014) sees the role of smart logistics is seen as one of the most important elements, which is supposed to consists of ‘cooperative freight transport systems, advanced information systems, Intelligent Transport Systems (ITS), urban consolidation centres, regulation of load factors, time windows for entering city centre, off-hour delivery, and road pricing.’ In this article, the researchers also maintain that the role of an ICT basis and a crowdsourced logistics approach is key for the implementation of smart logistics.

Lee et al. (2016) also maintain that these demands are necessary for smart logistics in our current society. According to their descriptions, the aim of smart logistics should be to try to meet the current demands from markets, which include the need for cheaper, more flexible, more convenient, as well as more sustainable logistics solutions. With this aim, some large enterprises have started to pursue crowdsourced logistics as an appropriate approach. Indeed, as Mehmman et al. (2015) state, crowdsourced logistics have been implemented by several companies. Uber, as one of the successful logistics providers, is now executing the crowdsourced logistics business model. Amazon, at the same time, is utilising their users as a ‘crowd’ to deal with ‘last-mile’ issues. With the further development of markets, the demands and implementation of the crowdsourced logistics will become more and more common in the future.

2.3.1. Definition

Crowdsourced logistics. Just from the name, it is easy to see that this business model is a type of crowdsourcing, which concerns the implementation of crowdsourcing in the logistics industry. As Mehmman et al. (2015) present, the main idea behind crowdsourced logistics is to see everyone as both providers and users. Hence, what a logistics company should do is provide a platform for the delivery of information to two groups of people, while coordinating and providing ICT and other relative infrastructures (payment, tracking, useful data, etc.). It tries to achieve a sharing economy through crowdsourced.

According to Mehmman et al. (2015), crowdsourced logistics could be defined as follow:

‘Crowd Logistics designates the outsourcing of logistics services to a mass of actors, whereby the coordination is supported by a technical infrastructure. The aim of Crowd Logistics is to achieve economic benefits for all stake- and shareholders.’

The reason why companies have started to pursue crowdsourced logistics, is because they see the potential for it to improve current logistics services. According to Mehmman et al. (2015), crowdsourced logistics are able to improve upon existing logistics performance *‘in the range of volume, speed and flexibility, so that leading to financial win-win situation for all stakeholders.’* As they explain, through the use of crowdsourced logistics, customers can have a more convenient and flexible logistics service, while suppliers could save money at the same time. That is why, the development of crowdsourced logistics is encouraged by all stakeholders in the overall industry.

2.3.2. Suggestions for Implementation

In 2008, Howe Jeff, the first man to present the concept of crowdsourcing, published his first book on the topic, entitled ‘Crowdsourcing: How the power of the crowd is

driving the future of business'. In this book, various forms of crowdsourcing were proposed, and the researchers also presented ten rules of crowdsourcing as a set of suggestions. As one form of crowdsourcing, such suggestions are extremely important for the implementation of crowdsourced logistics in reality.

According to Howe (2008), the ten rules consist of 1. defining your problem, 2. choosing your target contributors and 3. attracting them with their desires at the first stage. 4. Next, even though crowdsourcing is a valuable method, keeping your own employees is still important. 5. During the process, the importance of management and organisation must be highlighted. 6. For better results, one big task should be to break down tasks into a number of simple sub-tasks in order to make them easier for contributors to work with. 7. Meanwhile, depending on the sturgeon's law, managers should realise the importance of filtering irrelevant crowds and then 8. focus on the value of finding the 'right crowds' and efficiently utilising them. 9. Finally, simultaneously guiding and respecting the crowd community is important, 10. and never forget about reward systems. In that way, the implementation of a crowdsourced platform could be confirmed to be on the right track.

3. Methodology

This chapter describes general research methods and outlines what methods will be used for this master thesis. The methods of data collection, data analysis, and the validity and reliability of this master thesis are also included in this chapter. According to the works of Hussey et al. (1997), the methodology refers to the overall process of the research, from data collection to the data analysis (Hussey et al., 1997). Therefore, it is necessary to choose the right methods, and it is also necessary to study and formulate research questions when selecting appropriate data.

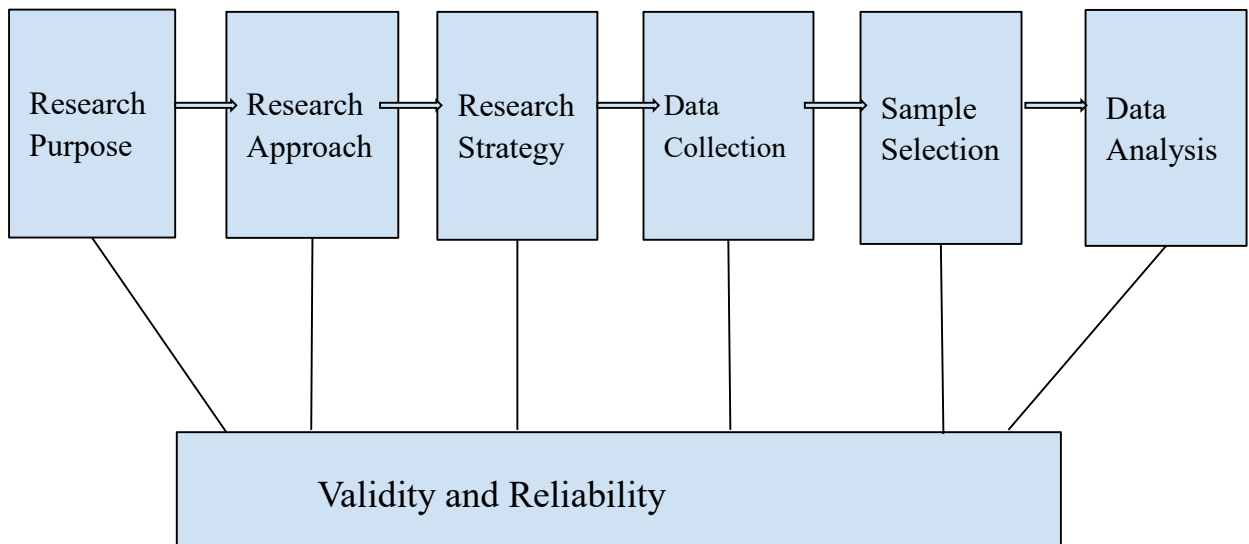


Fig. 3.1. Structure of Methodology

3.1. Research Purpose

There are three possible ways to categorise the purpose of academic research, they can be exploratory studies, descriptive studies, or explanatory studies (Yin, 2003).

Exploratory research is generally used when the content and nature of certain research topics are not clear (Robson, 2002). It is used to define the nature of the problem as well as gain a better understanding of environmental problems and carry out small-scale research activities. Exploratory research is particularly helpful in expressing a big

problem as precise sub-problems to make the problem clearer and identify the need for further research (Mitchell and Jolley, 1998). In short, exploratory research is for those who know little about a given problem, and can be used for any of the following purposes:

1. To more clearly express the problem and make assumptions;
2. To enable researchers to become more familiar with the problem;
3. To clarify concepts (Mitchell and Jolley, 1998).

Descriptive research can meet a range of research objectives, describe the characteristics of certain groups and identify differences in needs, attitudes, behaviours, opinions among different groups of consumers, market share and market potential. The identification of industries is very common in descriptive research (Adam & Schvaneveldt, 1991). A good description of the research requires considerable research and prior knowledge of the subject; it relies on one or more specific assumptions that guide the research in a certain direction. In this regard, descriptive research and exploratory research have considerable differences. Exploratory research is more flexible, descriptive research is more rigid, descriptive research requires the survey of who, what, when, why and how to obtain clear answers (Adam & Schvaneveldt, 1991). Some answers to these questions are implied in the assumptions or describe or guide the research hypothesis itself with some answers, but others are not clear. Only through hard thinking by researchers can even a small-scale experimental or exploratory research project offer explanations. In any case, descriptive research asks who, what, when, where, why and how to get a clear conclusion. Researchers when testing a hypothesis should delay to collect first-hand information (Adam & Schvaneveldt, 1991).

Explanatory studies also need to have programmes and a structural design. Although descriptive studies determine how close the links are between variables, they do not establish a causal relationship. To examine a causal relationship, one must control variables that may affect the results, so that the impact caused by the variable's manipulation on the dependent variable can be measured. The main research method is

causal experimentation. Of course, some advanced statistical methods can be used to test the causal model (Saunders and et al., 2003). For example, to test crowdsourced logistics (independent variable) influence on the last kilometre (the dependent variable) the impact of the same sample can be randomly divided into two groups and compared.

Based on the research questions and objectives, this research aims to explore crowdsourced logistics, and gain a better understanding of the concept. Therefore, this thesis will conduct exploratory research through literature searches, using the database in the library, and the company's internal documents as well as the interview the with specialist in the field. During the thesis, researchers would like to describe this process as exploring the value and influencing factors of crowdsourced logistics systems. Researchers will also try to explain certain content that is found in order to answer the research questions. Generally speaking, because of the research questions' focus on accurate descriptions of crowdsourced logistics systems and value creation, its main purpose is descriptive.

3.2. Research Approach

Based on our purpose and research questions, we decided to choose qualitative methods for this thesis. The researchers considered qualitative methods to be the best approach, due to the fact that this research is examining how crowdsourced logistics creates value. The goal is not to reach a generalised conclusion, but rather through a small-scale study, the research will examine the most important aspects at a deeper level.

Qualitative research methods are based on social phenomena or things that have properties with contradictory changes in motion (Martrlla et al., 1999). Qualitative research methods work within the provision of things, to study a method or angle of things. It is a generally recognised axiom, a deductive logic and a lot of analysis based on historical facts, and from the contradictory nature of things, describes, and explains things studied. Qualitative research, should be based on a theoretical and empirical framework, and directly seize the main aspects of the characteristics of things, the

homogeneity difference in the number of temporary omissions (Martrlla et al., 1999). This research is going to study a conceptual topic, which it is difficult to support with accurate data. Therefore, quantitative methods were not chosen for the report.

3.3. Research Strategy

The purpose of this thesis is to gain a deep understanding about crowdsourced logistics, as well as to use the example of JD crowdsourced logistics to analyse whether there is a place for crowdsourced logistics, and what the status of it is in China. Hence, a case study was identified as a suitable research strategy to collect and analyse data in order to get reliable results in the end. According to Yin (2003), where researchers cannot control events or behaviour, case studies should be identified as a suitable strategy rather than experiments which ‘focus on past events’. A similar argument is presented by Martrlla et al. (1999) who believe that case studies should be pursued instead of experiments, if the focus of research is a currently occurring event or action.

However, the boundaries between the phenomenon and the scene are not always clear when using these research methods (Yin, 2003). Case study phenomena often produce many variables (Yin, 2003). In order to link the data with theoretical ideas and theoretical assumptions, the design phase is identified as key. Thus, in this research, it is necessary for the researchers to gain a deep understanding of the theoretical propositions, for instance, what crowdsourced logistics is (Yin, 2003).

When doing a case study, a site visit is considered to be a good approach to achieve a deep understanding of a certain case (Yin, 2003). However, in this research, due to the long distances involved, visiting the case study company - JD Group, seems like an unrealistic solution. But for better primary data collection, researchers did schedule a telephone interview with the managers of the case project. Based on the specific purpose of this research, before the data collection, a clear question list was set as the framework to guide the overall data collection process. While during the process of primary data collection, some unexpected questions arose based on the further

responses to the interviewer's questions, which explored other issues as well.

Among the various kinds of interview, researchers select a semi-structured interview with Mr. Wang, who is the senior product manager of JD crowdsourced logistics. Mr. Wang is responsible for the credence, charging, clearing and customer relationship management (CRM) of JD crowdsourced logistics. The reason why the researchers selected Mr. Wang as the interviewee was because, as the first product manager of JD crowdsourced logistics, he has great understanding of the whole process of JD crowdsourced logistics, from its early up and coming stage, preparations, growth processes, up until its present status. Besides, crowdsourced logistics is also the main focus of Mr. Wang's job, which leads to a deep understanding and strong level of experience with the implementation of crowdsourced logistics in China. Meanwhile, as a senior manager, Mr. Wang also has knowledge of both the development of production lines, and the decision of top managers.

3.4. Data Collection

For this research, the researchers collected data from multiple sources, which consisted of literature, newspaper articles, interviews, observations, archival records etc. During this research, both primary data and secondary data were achieved and combined. Some relevant information about crowdsourced logistics came mainly from the secondary data. Such data was gained by searching online, which included information from both the JD Group's official webpages and some previous research in this area. These data sources are complementary and should not be used in isolation (Martrlla et al., 1999). The primary data was collected through the interview with JD Group, and should not be used in isolation either (Martrlla et al., 1999). The primary data was collected by doing the interview with JD company employee. There was some documentation collected including notices, meeting minutes, policy documents, proposals, and so on. The contents of the interview was the most important source of primary data. The authors structured an interview with Mr. Wang, who is the first production manager of

JD crowdsourced logistics project. Since the JD crowdsourced logistics project only started about two years ago, the department's structure is relatively small. Meanwhile, despite the huge scale of the JD Group, employees from other departments of the company have quite limited knowledge about crowdsourced logistics, which restricted the pool of potential interviewees for this research. Among all potential interviewees, Mr. Wang as the head of the JD crowdsourced logistics project, has gained a comprehensive view of the working process of JD crowdsourced logistics. That is why Mr. Wang was identified as the perfect respondent for this interview. Before the interview, a question list which included a series of questions was prepared by researchers. The questions included: 'What is JD crowdsourced logistics?', 'What motivated the company to develop this model?', 'How is the current implementation situation?' etc. During the interview, the wording of the interview questions was quite important, and researchers proposed to avoid asking leading questions. Before conducting the interview, researchers were ready to advance a series of interview questions, and to maintain an open and flexible attitude, but respondents were also asked to respond to follow-up questions and explore other issues.

All in all, for this research, data was pursued from multiple sources, and all the gathered data was compared. What's more, the data was collected according to different angles, and different methods of collection were subjected to interoperability certification. The research established a database of case studies, which means that the data collected will be collated and recorded into text.

3.5. Data Analysis

In order to improve the quality of the analysis, the researchers took three steps: data reduction, data display and conclusion drawing, and validation of the material being presented (Miles & Huberman, 1994). During this study, researchers tried to follow these steps. During the first steps, when researchers conducted the interview with the JD company employees, the researchers took notes and recorded the details of the

exchange, and also summarised the information, making it easy to understand. All the information from the interview was translated into English, because the manager of the JD company couldn't speak English. During the second step, the researchers displayed both the secondary and primary data in a form, providing a whole picture and clear structure on how to conduct data analysis after the interview and secondary data gathering processes were finished. For the mission of meeting research objectives through the interview, a comprehensive questionnaire was produced containing the questions which reflected their opinions on the improvements made by using crowdsourced logistics (Martrlla et al., 1999).

Once the feedback of questionnaire is obtained, the researchers will summarise the results. Apparently, some points of view from the respondents would be ambiguous in the first place. Therefore, during this phase, understanding the real opinions behind their words is identified as the core task. Hereafter, the description of results will be given, which will provide a whole picture about what the feedback reflects. Through this description, a general understanding of the case can be achieved, while the direction of analysis for the next step will become clear as well. In that way, the researchers can figure out which questions should be their focus in the subsequent analysis.

Combining the results from interview and other information sources with scientific theories which were presented in the chapter of the literature review, a deep and comprehensive analysis of crowdsourced logistics will be achieved, meeting the objectives of this research. Last but not least, according to the description and analysis processes above, some recommendations for the future development of crowdsourced logistics will be proposed and summarised at the end of analysis section.

During this thesis, both PESTLE and SWOT analysis methods have been used for analysing both external and internal environments for the implementation of crowdsourced logistics. The information used for this analysis was gained from both primary data (through the interview) and secondary data (from online news, political information and so on).

3.5.1. PESTEL Analysis

PESTEL is a strategic management and planning tool used to identify and analyse how a project is influenced by its operating environment, influences which could be classified into Political, Economic, Social, Technological, Legal and Environmental factors. And these factors could present threats and opportunities for the project in the future. Political factors refer to the political environment and regulations that are made by the government, and emphasises the role of government. Economic factors can include the investments, profit margins as well as the economic trends for the whole industry. Social factors are determined by the influence of public attitudes, cultures, lifestyles and social values on the specific industry. Technological factors identify how the potential production abilities can be affected by research and technology development levels. Environmental factors refer to pollution issues for example, which are playing an ever more important role, especially for the logistics industry, but will also vary from country to country. Finally, legal factors determine legislative constraints, policies and regulations that affect the industry or project (Andræ, 2009)

This model contains many variables that are dynamic, such as time, the political environment, legislation and policies. These factors are usually linked together so their analysis could be broad and not very critical. Even so, this strategic management and planning tool is still an effective way of reflecting the external factors and operating environments of a project.

3.5.2. SWOT Analysis

Albert Humphrey came up with this analysis method when he led a project at Stanford University in the 1960's and 1970's using data from Fortune 500 companies. SWOT is often employed as a strategic management and planning tool to analyse the Strengths and Weaknesses of, Opportunities for, and Threats to a project. As shown in Fig 3.2, this method could evaluate internal factors in the form of an analysis of strengths and weakness, and evaluate external factors in the form of an analysis of opportunities and

threats, factors that will be of benefit in achieving the objectives of the project or be detrimental (Shojaee, et al., 2013).



Fig 3.2. Concept map of the SWOT analysis (Shojaee, et al., 2013)

When undertaking a SWOT analysis, it is important to understand that the concerns of current and potential marketing trends should be included in the analysis of strengths and weaknesses in order to determine which opportunities would be best pursued. Besides, the strengths and weaknesses are relative rather than absolute. Opportunities could be found from economic climate, market and technology development. Threats may come from competitive activity, channel pressure and political changes (Kotler, et al. 2005).

3.6. Quality of Research

3.6.1. Limitations and Potential Problems

The researchers tried to achieve a perfect investigation during this master study, some limitations will always exist. In this study, the researchers were examining the case study of a Chinese company called JD, the researchers analysed the situation regarding crowdsourced logistics at the JD company, as executed in the Chinese market. As case studies have some limitations, there are always some potential restrictions and problems that cannot be avoided. Even though the researchers got a lot benefits from this case study, there were some potential problems the researchers have to mention.

Firstly, since through a case study once can only research a few specific questions, the

researchers had to narrow their interview down to several simple questions for this research. Secondly, this case study cost us a lot of time to design and make contacts, which was pretty heavy work for two researchers in such a short time. Thirdly, due to the fact that crowdsourced logistics is still a new topic in the logistics industry, it was very hard for us to find sufficient useful data, especially for the primary data. Although there are several players in the industry, most of them still have apprehensions to share relevant information with others, especially to their competitors. Whereas, Mr. Wang from JD Group is the only one the author could achieve. Hence, the researchers only found one interview respondent for this case study and have no comparing or contrasting group. At this stage, the authors have realized that might lead to the overall research not totally valid or reliable, and the result may not represent the whole industry. Somehow, that is the best the authors could make. If there were enough time and resources, more case companies and respondents could have been explored and presented for the research.

Because the case study is not a statistical summary, it is always influenced by some personal opinions when it comes to the result. The case study did not have a standardised method for the analysis of the data. There have always been some problems with choosing the evidence and explaining it due to personal choice. Researchers have differences in opinion which will affect the results of any data analysis. During this case study, the researchers spent a lot of time and money, their lack of time and manpower were quite important as well.

For the collection of primary data, the interview respondent was Chinese and did not speak English. Therefore, during this process, all communication was carried out through the Chinese language, and researchers had to take notes in Chinese too. Afterwards, researchers translated everything to English. This might cause some misunderstandings between these two languages. This language barrier problem applied to the secondary research as well. Researchers got some documents from the JD Group, the government and also the news media. All the documents were published

in Chinese which could also cause some misunderstandings during the translation process.

3.6.2. Reliability and Validity

The reliability should be coherent, and the research should be repeatable in future studies. Validity means the model measures exactly what it claims to measure. Validity in this case is determined by whether the researchers asked the right person and the right questions. The reliability and effectiveness of the data acquisition process is very important, because it will directly result in a reliable and effective analysis and conclusion, this is the most basic requirements for the entire study. To achieve this objective, using scientific data collection methods to determine how to select references and design the interview questions becomes the main issues in this research. Many articles often only have their own results, when just looking at one or two articles it is difficult for us to fully understand the development of crowdsourced logistics, and sometimes they might be misguided, during this study, the researchers chose more articles to read, and compared them with their own understanding in order get their results. When the researchers selected references, scientific articles and the information from the JD company's official website were used, so the reliability of the secondary data is pretty high. On the other hand, the researchers collected primary data from people who were working within this industry area, which means the primary data is also reliable.

It is difficult to avoid problems with reliability because crowdsourced logistics is still a new topic in the field of logistics, it is very hard to find sufficient information about it and not many companies utilise it in China. Besides, it is always hard to find negative information about a company on their official website, as they all try to write something perfect in their descriptions.

4. Empirical Study

In this chapter, the results of the case study will be presented comprehensively. Both the information about the case company – the JD Group, through secondary data which was collected from the internet, news and other relevant articles, and the results of the interview will be described. The contents will mainly concern basic information on the JD crowdsourced logistics project, the process of its execution, its achievements, the expected results (from the company's perspective), as well as its impact on society. In that way, all three research questions and objectives will be at least, partly answered by the end of this section. For the research question 2 especially, the summarised information from this section will clearly provide an answer. Afterwards, the information that the researchers gathered will be analysed and combined with the existing theories that the researchers summarised in Section 2, so that the final conclusion can be obtained by the end of this thesis.

4.1. Background on the JD Company

The JD Company, as a major part of the JD Group, is also one of the largest e-commerce platforms in China. It was founded in Beijing city in 2004 by Qiangdong Liu, who is the CEO of JD Group. With about 110 thousand employees and a 56.9% market share in the area of online direct sales in China, the company achieved 462.7 billion CNY of GMV (Gross Merchandise Volume) in 2015. JD's aim is to provide consumers with an enjoyable online retail experience through their website and mobile application. To assure their service performance, JD built a self-owned logistics system, with nationwide fulfilment infrastructure as well as a last-mile delivery network for home delivery (<http://ir.jd.com/>). Until the end of 2015, seven logistics centres (named 'Asian NO. 1') managing 213 warehouses in 50 cities, delivering goods from 5367 delivery stations all over China, so that various home delivery projects could be achieved to make users' daily lives more convenient. At the present time, JD's logistics centre has become one of the biggest and most developed ecommerce logistics centres in China

(<http://jd.com/>).

4.2. Background of JD's Logistics

The company aims to become the only self-owned comprehensive logistics network. Its overall system consists of small, medium and large, refrigerated and frozen warehouse facilities. JD has a dream for the logistics field, where: in the future, JD will be able to provide a network of 13 million people in China, their users will be able to confirm their orders at any place and at any time, and will be able to receive their goods within eight hours. Of course, that is not easy, especially when the scale of JD's business is still not big enough. But through the huge initial investments JD has made in the logistics department, researchers can see its courage and ambition.

In its present state, there are 28,000 employees working as warehouse staff and delivery men for JD Company. These employees are the basis of the JD logistics network. By February 2014, JD had 82 warehouses in 34 cities of China, with a total construction area of 1.3 million square meters, JD also had 1485 distribution points and 212 pick-up points in 476 cities of China. Based on such infrastructure, JD has achieved its goal of "single-day delivery" in 40 cities, meaning online orders from those cities can be delivered to end users within one day. Next, 'the other day delivery' project is held by JD in another 248 cities. That project promises that online orders from those 248 cities can be fulfilled by the day after their orders. Behind this huge logistics system, JD is increasing investment in logistics, according to the JD official website (<http://ir.jd.com/>), turnovers from 2009 to 2013 were 144 million CNY, 477 million CNY, 1.515 billion CNY, 3.061 billion CNY, and 4.1 billion CNY respectively.

JD Company sees itself as a technology-driven company, so the development and execution of new techniques are viewed as an important strength for the company to gain value (<http://ir.jd.com/>). This is also why the JD crowdsourced logistics project was founded by the company. The purpose of JD crowdsourced logistics is to complete the existing O2O home delivery system through building a more meticulous logistics

network. This new project was started in Dec. 2014, and the initial application was first presented to contributors in Feb. 2015. Two months later, it was replaced by the improved version (through interview), and made available for the ‘deliverer crowd’ on the 12th of May, 2015 (Shi & Yin, 2015). Through JD crowdsourced logistics, home deliver food, flowers, fresh food and products from local supermarkets can be delivered to one’s door within two hours in ‘dense residential areas’. In 2015, the project was started both in Beijing and Shanghai. While nowadays, even people living in most of the second-tier cities in China can use the service as well (Shi & Yin, 2015).

In order to obtain more detailed information about JD crowdsourced logistics, the researchers conducted an interview with Mr. Wang. The reason for identifying him as the interviewee for this research was mainly because he is a senior product manager in JD, and also the first product manager for the JD crowdsourced logistics project. What’s more, since crowdsourced logistics is the main speciality of Mr. Wang’s work, he is quite familiar with both crowdsourced logistics and the JD company. The information the researchers gathered from him included what the project is, how it works, the motivation behind the project and how they manage their ‘crowds’, as well as the potential risks and measures in place to deal with them. All this information will be summarised in the following sections.

4.3. What is JD Crowdsourced Logistics?

In order for the authors to gain a clearer understanding of this question, Mr. Wang explained his own opinions about the concept of ‘crowdsourcing’. From his point of view, the essence of crowdsourcing is to split a large task into various smaller sub-tasks, so that everyone who can contribute can work on a part of the task separately. That is also the most significant difference between crowdsourced logistics and other traditional logistics models.

JD crowdsourced logistics, is actually an O2O logistics capacity platform which has become established online and mainly focuses on B2C business. Its establishment

depended on highly developed online technologies, extensive network coverage, as well as the prevalence of smart phones. Its objective is to gather all delivery demands from end users, and the public, and pass to their 'freelance delivery men', so they can quickly respond to such market demands. In more detail, there are two functions of the platform. On the one hand, the platform links to some online service providers, such as 'JD home delivery', 'hungry' (a mobile application which gathers people's food delivery demands) and so on, to gather and take delivery orders which come from end users. On the other hand, the gathered information is published on the platform, so that both the original JD deliverers and also 'freelance delivery men' can see it and choose which orders they would like to take. Once an order is confirmed as finished, deliverers can get their payment for their specific order immediately. For instance, if a person orders his lunch on the 'hungry' app and would like to have the food delivered to his offices, he would first finish his payment online. Afterwards, JD will obtain the order through their online link with 'hungry', and publish this order to all potential deliverers who are registered with the JD crowdsourced logistics mobile app and can handle scope of the order. Then, any one of the deliverers who would like to take the order can select this order on his smart phone, and then take what the user orders from the specific restaurant(s) to the user's office. Once the user gets his order, they would confirm the delivery on 'hungry', so the money would be transferred from 'hungry', through the JD platform, to the deliverer's bank account immediately. That is the order process from start to finish. During this process, the main job of JD, as a platform, is to set the rules, manage and control the working process during operation, and finally to ensure smooth communication within the overall supply chain, as well as strike a balance between orders and capacity for better service quality. The working process of JD crowdsourced logistics is described as follows:

When a consumer decides to order goods from JD and chooses the fast delivery service which is provided by JD's crowdsourced delivery, the order will show up on the JD logistics service platform with all necessary details like the address of the customer, telephone number, deadline of the order, the distance between the customer and the

pick-up centre etc. When the service seeker submits a delivery service request online or via JD's app and wants an item delivered, the crowdsourced delivery platform will send a confirmation of order details to the available approved couriers in the vicinity of the pick-up centre. Similar to the way in which the UBER app works, the first courier to accept the delivery assignment secures the task. Couriers will receive 6 RMP in return. The APP uses GPS to outline the 3-5km area in which couriers are selected for delivery. The couriers will contact the customers 10 minutes before arrival, so that they can get the gate codes for the building. Fig. 4.1 makes the process more intuitive and easier to understand.

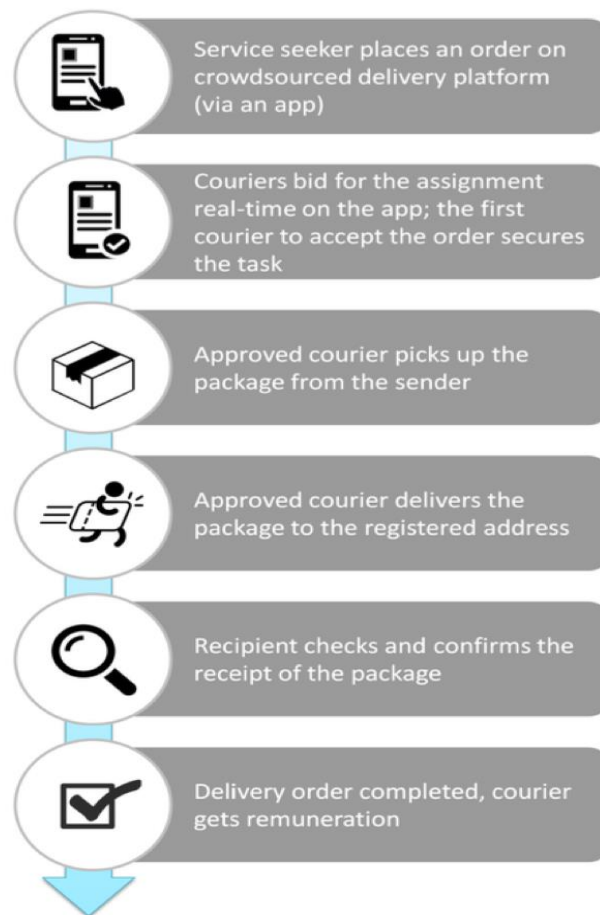


Fig. 4.1. Working process of JD crowdsourced logistics (Source: Fung Business Intelligence Centre)

4.4. Motivation of JD Crowdsourced Logistics

Why did JD decide to establish the crowdsourced logistics? What is the reason behind their actions and why can others not replicate this project? To answer these questions, the key is to get to know the motivations behind JD crowdsourced logistics. According to Mr. Wang's answer, the appearance of this project is attributable to the further development of the O2O business of the company. Due to the nature of JD, O2O business was no doubt the key business of the overall company. While due to the aim of further developing, the company realised the importance of the expansion of their business's scope. Meanwhile, as society developed, the demand for convenient deliveries in the area of O2O became increasingly significant, especially the demands for fresh products. For instance, nowadays in China, many people like to send gifts (flowers for example) to their friends or families for special occasions if they cannot meet them in person. In such cases, most people would order a product online, and make sure the presents can be delivered on time. Another factor is that many people who live in cities just want stay at home, or they may have to work during their lunch time, so they like to order food or fresh food materials online, pay and wait at home or their offices. In such circumstances, there will be an extremely small window for delivery, and that is exactly the market which JD would like to enter right now.

In order to achieve that, JD started to work with many local supermarkets, flower shops fruit shops and so on. The company plans to gather the orders from such shops within a range of three to five kilometres and deliver their products to the end users within two hours. Due to this aim, the question of which type of delivery should be pursued becomes a key issue the company must face.

With the introduction of Mr. Wang, during the planning process, there were two approaches to such problems. One of them was to use the existing self-owned delivery team so that the overall process could be easily controlled, and few changes would need to be made, so that a large amount of initial investigation could be avoided. While

another proposed solution was to pursue crowdsourced logistics. Through the use of part-time ‘crowdsourcing’, goods could be delivered on time as well. Somehow, this type of logistics led to the establishment of a totally new project which required much more investigation than the former choice. After six months of speculation and tests, the management team finally decided to establish ‘JD crowdsourced logistics’ for their O2O business instead of the original delivery team. This was because the former choice for such a O2O business would have led to low efficiency and high costs. Seeking the underlying reason behind that, the existing self-owned delivery team of JD aimed to serve the original B2C (Business to Customers) business. Under these circumstances, the orders from end users could only be gathered by the ecommerce platform several times per day. Once the total number of orders was big enough, the orders would be sent to a specific distribution centre. During the distribution process, through the use of automatic sorting and large-scale transportation, the overall process benefited from the scale effect. As a sum, the characteristics of logistics compared to B2C include centralised orders and distribution, scaled transportation and lower demands on efficiency. Somehow, what the O2O business asks for must be fulfilled in a totally different way, and based on traditional solutions, JD could not make any profits at all. The logistics service which were geared towards O2O had to consist of the characteristics of high timeliness and flexibility, decentralisation and regional distribution. In other words, such types of logistics must be able to pick up and deliver products over short distances within a short time, no matter when or where the orders show up. That is exactly what crowdsourced logistics could provide. Whereas, by the time the management team decided to establish their own crowdsourced logistics team in JD, this project was designed not only for JD’s O2O business, but also for all potential O2O suppliers in the Chinese market.

According to the interview with Mr. Wang, from the company’s perspective, one of the biggest differences between crowdsourced logistics and exiting logistics models is that sufficient capacity is always available to the company, but the company does not need to pay them all the time. This is also identified as being the most significant advantage

of this logistics model.

In order to gain a better understanding of this point, Mr. Wang cited an example for us. If there is a task which requires ten people to work together for the company, following the traditional model, the company would have to hire ten people, or alternatively, pay for a third party supplier which can gather ten people for the company to work with. Therefore, during the working process, the employees' salaries will not only consist of their labour costs, but also their tax, social insurance costs and so on. Afterwards, even if the tasks do not require so many labourers, it will not be easy for the company to immediately end their employment relationship with such labourers. All these issues together cause the company's costs to be higher than the real cost of the task itself. While if the company were to pursue a crowdsourcing model, many unnecessary costs could be avoided. Through the leverage of economic returns, capacity demands will literally not be a problem. In this way, in the case of JD crowdsourced logistics, every stakeholder (end users, partner stores, JD platform operators and contributors) can gain more value with less cost than before, and the company is also happy to share this value with all the stakeholders in the system. That is also why, 'freelance delivery men' get higher wages from JD crowdsourced logistics than from traditional express companies. Workers can use this extra money to immediately improve the quality of life for their families, and this is also one of the intentions of the JD Group.

4.5. Achievements of JD Crowdsourced Logistics

According to the interview with Mr. Wang, O2O self-owned logistics could meet 80% of all distribution needs, but with the increasing volume of orders, it is difficult to cover every corner of the city, some parts of the community still need resources to meet the remaining 20% of distribution needs. In Beijing, there are many retired elderly people, they have a lot of free time every day. There are also lots of young people who desire better salaries. If they wished, within 2km of their area of residence, they could spend one or two hours every day working for JD sending fresh fruit to their local community.

This is good way to exercise and earn money at the same time.

After a long period of initial preparations, the overall platform of JD crowdsourced logistics was designed from Dec. of 2014 and first published in Feb. of 2015. During the first day, JD crowdsourced logistics officially began operations in Beijing, a young white-collar worker successfully grabbed and completed the first delivery. From the beginning of May, 'JD crowdsourced' channels were opened to applications. Within a few days, the number of applicants rapidly approached 2,000 people, 'JD crowdsourced' channels were covering different types of people, such as white-collar workers, college students, and older retirees. They became well known for their familiarity with fresh products, Internet workers were also involved. JD started crowdsourced logistics, and during the first three months, their congregation had grown to more than 50,000 logistics package crowdsourced couriers, it expanded to 13 cities, compared with traditional structures of logistics personnel, JD crowdsourced logistics was really amazing in terms of speed.

After the first day of 'JD crowdsourced' offline training, there were about 100 people who had the ability to make their first delivery. 'JD crowdsourced' will continue to recruit and increase their community capacity through this model, as everyone can act as a courier, it will reduce the cost of logistics regarding personnel. On the other hand, it was realised that everyone has a single function, and could greatly enhance their work in accordance with the price advantage efficiency, and more importantly, these 'JD crowdsourced' workers became JD's main source of free advertising. It is noteworthy that the difference between JD self-owned logistics and JD crowdsourced logistics, is that personnel are not involved in vocational couriers, the JD crowdsourced logistics business model is one where the 'public use their spare time to participate in express distribution, improve logistics efficiency and speed.'

At present, the JD crowdsourced logistics model can solve many people's job problems, this model has very significantly contributed to society. Whether white-collar workers or students, as long as people are willing to do this job, and these people meet the basic

requirements, they can become a member of the JD crowdsourced logistics system.

4.6. Potential Risks and Solutions

As mentioned previously, the overall working process of JD crowdsourced logistics is quite simple, JD's main objectives are to gather and select large numbers of people who are able and willing to be 'contributors' for this project, as well as to manage the overall system and working process.

For the first objective, as Mr. Wang mentioned, several measurements were pursued in order to ensure contributors' service quality as well as to solve the problems which could lead to transportation capacity shortages. First of all, it is necessary to attract a large 'crowd', ensuring that there will be sufficient transportation capacity for the overall project. Due to this aim, JD separates the potential crowd into two parts: the self-owned team for JD home delivery, 211 etc., and the part-time delivery men, the so called 'freelance delivery men'. One of its most significant characteristics, or in other words, strengths, is that the company has its own express team, which consists of huge numbers of employees. Due to this precondition, the management team decided to use this existing group of employees to build their initial 'crowd' for the project of crowdsourced logistics. Employees were asked to install the JD crowdsourced logistics platform application on their mobile, and they could save orders from the platform. Their motivation to do this was profit. Through the traditional delivery process, deliverers could get a payment of 2 CNY for per order. Whereas, through the new platform, each order could offer the deliverers 5 CNY. In that way, the initial 'crowd' was built. On the other hand, with the aim of gaining a real 'freelance crowd' from society, various advertisements and news articles were published by JD, so that every potential contributor could obtain this information, and join the 'crowd'. However, that was not the most attractive factor which contributed to the gathering of such a huge 'crowd'. The main reason why the scale of contributors was so large is attributed to the financial factor. Each order would pay 6 CNY for the 'freelance delivery men', while

in the traditional model, the payment for each express delivery was 1.5 to 2 CNY. By contrast, the attraction of crowdsourced logistics was significant. Both of them had their own delivery platforms online.

The second objective was to attract enough qualified contributors. As mentioned, the high pay for ‘freelance delivery men’ was one of many measures taken by JD to attract sufficient capacity. Mr. Wang told us, the main demographic JD would like to attract is young workers living in the ‘countryside’ and in urban areas. Most of them come from other places all over China. They come to the big cities seeking work opportunities. Since the salary they can earn is low, they desire to improve their quality of life with more money. Also, since most of them are quite young and have a basic education, such groups of people are easier to organise and their capacity and service quality are better than others.

On the other hand, the selection of ‘freelance crowd’ members is also an important objective of JD. Despite the quantity of ‘freelance delivery men’, it is extremely important to confirm service quality, JD still has their selection system for ‘freelance delivery men’. Basically, ‘freelance delivery men’ have to be older than 18 years old, there is no gender limitation, and they are required to have a smartphone. The company will use their ID number, and get information from the police’s system to make sure they do not have a ‘dark background’. Afterwards, once the company determines a ‘contributor’ is able to serve, some simple training for selected ‘freelance delivery men’ will be put on the schedule. The training consists of the use of the mobile application, regulation studying, training of standardised service processes and quality and so on. At the end of training, there is an examination, and only the trainers who pass the exam will become the ‘freelance delivery men’. Last but not least, due to its aim of confirming the quality of service, JD also establishes a set of standards in a deliverer evaluation platform which is open to the end users. The service performance of each delivery man will be shown in the platform, and their wages will also link to the evaluation results. In that way, both the quantity and quality of the crowd’s service can be determined.

For the management of the platform: the focus is mainly put on two part: financial risks and service quality control. To control for quality, especially when the trade product is food, the end users will not only be concerned with the service quality, but also the safety of food. In this part, through training and selection, each delivery man will focus on the delivery of different products, and depending on the different tasks JD assigns to them, they will get different professional equipment from the company to ensure the service quality. Not everyone is able to deliver fresh food, and not everyone can delivery coffee either. Information from each end user and delivery man is available on the platform so that the overall service process is clear. If there is any damage to the product or other kinds of accidents happen, the response is easy to identify.

Some end users will also worry that if they cannot get the products, they will have already paid. To deal with the financial risks of end users, JD crowdsourced logistics established a credit management system for their ‘freelance delivery men’. Each delivery man will link one of his bank accounts with the platform. Before he takes orders, they will make sure there is an appropriate amount of money in the account depending on the price of the product he delivers, the platform freezes this amount of money during the delivery process. When the delivery is confirmed as finish by the end user, this amount of money is unfrozen, and the payment will be transferred. Based on the number of orders one delivery man has finished, his credit with the system will change. What’s more, for delivery men with high credit, the platform shares the risks with them. For example, if a high credit delivery man would like to take an order worth up to 1000 CNY, but there is only 300 CNY in his account. Based on his high credit status, the platform will take this risk and let him take this order. In that way, end users’ financial risks are reduced.

Although there is a set of security measures, it is still impossible to avoid all problems in this area. If the user sends goods that are very expensive, this may increase the risk of a courier stealing. Nevertheless, at this current stage, the lack of professional distribution could also be a problem. Since not every delivery man is professional

worker, and the JD Group is not a professional logistics service provider either, this model is disadvantaged in terms of service satisfaction due to the lack of professional experience.

When the study authors asked Mr. Wang, what the most significant obstacle to their operation of JD crowdsourced logistics was, the answer he gave was making the regulations and the execution for ‘contributor’ management. Unlike with the traditional employment relationship, ‘freelance delivery men’ can easily choose whether they would like to join the system or not. Too strict regulations will definitely reduce their passion, and that is not the original intention of the platform. But no one can deny that without reasonable regulations, it is not possible for the continuous operation of the overall system. What’s more, the short time of operation of this model also leads to a lack of management experience in dealing with future uncertainties. Therefore, despite the main structure and infrastructure being already established, for further development, such topics will definitely be an important task for JD crowdsourced logistics.

Mr. Wang also highlighted that, despite JD crowdsourced logistics best efforts to serve the market, and its significant achievements, sometimes it still cannot fulfil all demands from its partner stores. Especially when they ask for large capacity orders within a fairly short time, or require a cold supply chain. That is also one of the focuses for its further improvement.

Other barriers consist of social debates and operation problems. Although a set of measures were set by JD crowdsourced logistics, it is hard to deny that the nature of crowdsourcing involves a large number of participants, therefore, some people will worry that their personal information in the platform will be threatened, since ‘freelance delivery men’ have the chance to use their information for illegal purposes. It may take more time for the platform to improve its level of service to society. Mr. Wang also mentioned that according to the feedback from delivery men, there are still some operational problems with their smart phone application, like inaccurate positioning of GPS, and occasional problems with order information. This has led to a worse user

experience with the app, which requires further improvements.

Further, as the researchers found, there are political conflicts over crowdsourced logistics which is a license problem. According to Shi & Yin (2015), professional delivery men in China are required to hold government-issued qualification certifications, and most of the 'freelance delivery men' just work for JD crowdsourced logistics as a part-time job, and do not hold this certification. This might become a problem in the future.

4.7. Impacts on Markets and Future Prospects

As one of the largest e-commerce enterprise in China which is pursuing a totally new type of business model in the logistics industry, JD believes that their movement will definitely affect the overall logistics industry. From Mr. Wang's point of view, the results which JD crowdsourced logistics could bring to the traditional logistics market could be summarised in two aspects.

From a short term and direct perspective: although the market demands for existing logistics service providers might not decrease because of JD crowdsourced logistics, their transportation capability will be gradually negatively affected by JD crowdsourced logistics. Compared with traditional logistics companies, there are few businesses similarities between traditional express service providers and JD crowdsourced logistics. Most companies contribute more to B2B, B2C or C2C markets, while JD crowdsourced contributes more to O2O in the area of ecommerce. Due to this, there will not be so much conflict among them. On the other hand, it is hard to deny that within a certain period, the capability for deliveries should be stable, and what can most efficiently drive this stability is the profit the deliverers can gain. In this case, it is foreseeable, to achieve the fluent operation of JD crowdsourced logistics, delivery capabilities will no doubt be a key factor which the company must improve. Despite the fact that the self-owned logistics team can cover the work to an extent, with the growth of demand, it will not possible for them to take all the orders from the market.

That is also the real meaning of crowdsourced logistics. Although crowdsourced logistics is literally a freely accessible business for everyone in society, considering both the quality and quantity of deliveries, the professional deliverers must be the premium assets that the company would like to attract, especially in the initial period. Due to this aim, financial profits are JD's key strategy for gaining sufficient delivery capacity. According to Mr. Wang, in traditional logistics companies, recent payment levels per express order for delivery men are between 1.5-2 Chinese Yuan (CNY). Compare that with JD crowdsourced logistics platform, which offers 6 CNY per order for their 'crowd'. Following the current business model, traditional logistics companies can only gain low rates of return, which means it is extremely hard for them to raise their employees' wages a substantial amount like JD can. Whereas, depending on the Internet Plus mode, JD could obtain value through the scale effect or other means instead of saving on costs of contributors' wages. What's more, in order to strive for increased logistical capacity, JD could even afford to subsidise whilst not earning through their own delivery 'crowd' establishment. Thus, based on the large gap in payment for deliverers, more and more contributors will be attracted by JD, and less delivery men will choose to serve the traditional express suppliers. Mr. Wang also believes that although some delivery men might doubt the new business model and would like to see how it goes instead of joining the system in the beginning, as time goes on, they will gain more confidence in JD crowdsourced logistics and gradually become contributors. That is the way in which JD crowdsourced logistics pushes the existing logistics service providers to move on.

In the long-term and indirectly: the development of crowdsourced logistics must influence the overall industry and might even completely change the existing business model, especially in the area of O2O business. It is apparent that, the logistics industry in China has rapidly grown during recent years. While as Mr. Wang presents, currently, the most significant high quality achievement which might lead to upgrades of the overall industry is the Fourth party logistics (4PL) project (undertaken by the Alibaba company), which is called the 'Rookie Plan', and the rise of crowdsourced logistics

companies. The 'Rookie Plan' aims to build a set of nationwide 4PL infrastructure in China as well as a smart logistics network which links to the global environment, and involves the majority of existing third party logistics (3PL) providers to provide a highly efficient and high-performance logistics service for end users. The project intends to deliver products to the end users within 24 hours anywhere inside of the country, and provide 72-hour delivery for goods from global markets. Such a plan is focussed on enhancing trunk-line logistics performance in China. While JD crowdsourced logistics aims to build a platform which could be able to mobilise each idle delivery person together to distribute decentralised goods within a few hours or even a few minutes in the range of one city. It is a new approach to improving branch-line distribution performance. Mr. Wang uses a metaphor to describe this system: if we say Rookie Plan is a reconstruction of 'aortas', JD crowdsourced logistics would be an alternation of 'capillaries'. It is easy to see how the combination of crowdsourced logistics and 'Rookie Plan' could result in the significant development of the overall logistics network in China, the entire industry would be influenced, involved and eventually changed, hence achieving industrial upgrading. The new type of logistics would involve everyone's daily lives with the characteristics of being regional, timeliness, as well as decentralised. In this context, the traditional logistics business model would be out of date, and existing logistics service providers will eventually have to choose between joining the system as a contributor to the platform, or dying with the old fashion business model.

At the end of the interview, Mr. Wang told us that he would really like to see a future where stores will never worry about their logistics; where the contributors to the platform can gain more money to better their lives, and will happily work for the platform in a freer environment, and where the platform can offer a high quality service with an unlimited capacity.

By the time this thesis was almost complete, the researchers received information from Mr. Wang, saying that JD decided to integrate the project of JD crowdsourced logistics

with DADA express - another professional crowdsourced logistics service provider in China, becoming a new DADA company. After the integration, the new company would become the biggest crowdsourced logistics service provider in China. While, through this integration, the new company will obtain both more professional experience from DADA, more end users of O2O business and more 'crowd' members from the JD Group. Facing the future, this new company is full of ambition.

4.8. External Elements May Affect Crowdsourced Logistics

Although the internal environment of JD crowdsourced logistics was shown clearly through the interview, to answer research question 3, some other information which shows the external environment of crowdsourced logistics development is also necessary. Therefore, this section is aimed at gathering all information from secondary resources to show the elements (both positive and negative) which may influence the further growth of crowdsourced logistics.

From the positive aspect, the growth of O2O business in China will lead to more and more demand for crowdsourced logistics. According to the article 'why China leads the online to offline revolution' (<http://www.innovationiseverywhere.com/o2o-why-china-leads-the-online-to-offline-revolution/>), people's increased incomes leads to increasingly numbers of smartphone consumers in China, who are now focusing on improving their quality of life. That will no doubt mean more consumers in O2O business. In fact, in 2015, Chinese online sales amounted to 589 billion US dollars (<https://www.internetretailer.com/2016/01/27/chinas-online-retail-sales-grow-third-589-billion-2015>). It is clear that online shopping is a common method of purchasing for Chinese people. Therefore, this trend will not stop in the predictable future. Especially when virtual reality technology (VR) like 'Google Cardboard' (<https://www.google.com/get/cardboard/get-cardboard/>) is recently being made available to more and more people, and will be enhance the experience of online shopping, such purchasing methods will be accepted by more and more people.

Secondly, encouragement from the government may also be a booster. In 2015, the ‘thirteenth five-year plan of China’ was published by the Chinese government, and is the general plan for Chinese development between 2016-2020. In this plan, it was highlighted that, in the period of 2016-2020, the Chinese government will support and encourage the innovative development of the logistics industry (http://www.gov.cn/xinwen/2016-03/09/content_5051375.htm). Furthermore, a good economic environment also provides opportunities for crowdsourced logistics development. As the article entitled ‘China sets economic growth target of 6.5 to 7 for 2016’ presents, despite China’s economic growth rate slowing, such a figure still represents great potential for China’s economy. Last but not least, more potential ‘crowd’ members may also safeguard the implementation of crowdsourced logistics. According to the ‘Synthesis Report about the Floating Population Issue of Eight Major Cities in China’ which was published by the Beijing government, more and more young people are moving from small towns to major cities, and that means a greater potential capacity for crowdsourced logistics.

(<http://oa.shxyj.org/UploadFile/20130926008/2015-09-18/Issue/klri4fsb.pdf>)

While from the negative aspect, the changed regulations may be a significant hindrance. According to a recent news report (<http://gx.people.com.cn/n2/2016/0503/c179430-28261244.html>), local governments in China are going to launch new regulations for electric bikes. Furthermore, any communication with the government is full of barriers as well. Just like with what happened with Uber (<http://tech.sina.com.cn/i/2015-05-27/doc-iavxeafs8162681.shtm>), which tried to communicate with the government, but until now, there has still been no improvement. A similar situation may also happen in the area of crowdsourced logistics. Since most intercity deliveries rely on the use of electric bikes in China, such policy changes will affect the implementation of crowdsourced logistics. What’s more, in the near future, it is possible that machines will replace labourers in the delivery of goods. If that happens, crowdsourced logistics will also be affected. In this area, the appearance of Amazon Prime Air (deliver goods by UVA) (<http://www.amazon.com/b?node=8037720011>) and Google’s self-driving

car (<https://www.google.com/selfdrivingcar/>) could lead to such a trend.

4.9. Summary of Results

The development of the logistics industry has attracted more and more attention in recent years, since more and more people are involved in O2O business, and ever more enterprises are focusing on the cost saving functions of their logistics. Under such conditions, the appearance of a totally new business model like crowdsourced logistics will no doubt become a hot topic in society. Although there are many debates and doubts, the first year's achievements of JD crowdsourced logistics in the area of O2O business are quite significant. Given the infrastructure and customer scale of the JD Group, the execution of JD crowdsourced logistics' implementation was smooth, and it has already reached some important markets. What's more important, this project actually does change people's daily lives in several aspects. According to the interview with Mr. Wang, the authors could see managers desire to seek an appropriate approach to achieving logistics industry upgrades to enhance revenues. Whereas crowdsourced logistics might be a potential way to reach this goal, it creates demands through offering people a more convenient lifestyle, and improves efficiency by utilising 'social free capabilities' as well as rational planning management. It also saves on management costs since it simplifies the management process through the use of online platforms. Besides, this new business model has the potential to lead to the industry being upgraded. The development of technologies as well as the popularity of the internet and smart phones also indicates higher market demand for crowdsourced logistics (<http://www.innovationiseverywhere.com/o2o-why-china-leads-the-online-to-offline-revolution/>).

However, on the other hand, it is also hard to deny that JD crowdsourced logistics is still far from its goal of reaching a complete system. Despite the fact that the people who run the project are full of confidence, the current situation is, JD crowdsourced logistics still shows weakness in its revenues. Furthermore, some obstacles and

unresolved issues, as well as the immature markets and environment could cause various uncertainties which could negatively influence the growth of the project, or even lead to its abortion. For the further development of JD crowdsourced logistics, it would be hard to say that the managers' missions are not difficult.

5. Analysis

In this section, the information which was gathered from both previous research (summarised in section 2 - Literature review), and the empirical study (section 4 - Empirical Study) will be combined to analyse the three research objectives and questions which the authors outlined in the introduction, section 1. As mentioned above, since research question 2 was mainly answered in section 4, this analysis chapter will mainly focus on the remaining two questions which are about what JD crowdsourced logistics brings to the market and what its prospects are, as well as requested issues for further development.

Due to this objective, the following content will set the analysis of the research objectives and questions as the main line of enquiry. Firstly, what the authors found from the interview will be compared with existing theories, so that they can gain perspective on the real value that JD crowdsourced logistics creates. Thereafter, the prospects of this projects, and what issues need to be solved in the future will be analysed, depending on what the authors find from the interview and literature. In order to obtain clear and comprehensive answers for this, both PESTEL and SWOT analysis models will be pursued. Through such models, readers can clearly get to know the current situation of this project, both from an internal and external perspective. Nevertheless, through these models, the weaknesses the authors find for this project will be identified, and the obstacles (aka: what is required to be done in the future) outlined at the end of this section. Finally, a summary of this chapter will be presented at the end of this section leading to the conclusion of this research afterwards.

5.1. The Concept of Crowdsourced Logistics

Based on previous theories and what the researchers found in reality, crowdsourced logistics could be defined as an online platform for gathering and matching delivery orders and suppliers who are close to each other at any time. Crowdsourced logistics,

as an extremely new business model which integrates various modern techniques, such as use of the internet, smart phones etc. includes so many differences from traditional logistics service models. Companies, or in other words, problem holders in traditional business models, just need to define the aims of the project, keep contacting and regulating their contributors and so taking charge of the overall progress. Most contributors in traditional business models are professional individuals, groups or entrepreneurs which need to be hired as full time or part time employees or co-operators. What's more, for most such logistics providers, their business focuses are on traditional business areas as well, such as the B2B, B2C parts. While crowdsourced logistics can not only service this kind of business area, but is also capable of coping with O2O business, where the orders are usually decentralised, and high performance in terms of timeliness, flexibility and adjustable capacity are required. Due to their aim of recruiting every potential problem solver, apart from problem defining, the problem holder also needs to publish their problems through various channels by themselves. Nevertheless, what crowdsourced offers to users and companies is the mass of contributors from everywhere which provide their services and get paid for specific tasks, once the task is finish, such temporary groups would disband immediately. Based on these various differences, it is easy to image, when compared to previous logistics service providers, the results which crowdsourced logistics provides for markets could be quite distinct in several aspects.

5.1.1. Potential Gains

According to the summary of the previous research which relates to the area of crowdsourcing and crowdsourced logistics, the main advantages it could bring mainly relate to: improvements to performance, which consists of the aspects of service quality (speed etc.), quantity (high volume of orders) and flexibility. Through the approach of crowdsourcing, the problem holders could offer their contributors the possibility to achieve long distance cooperation and flexible scheduling, while more skilled workers who are not hired could be attracted and get together to solve the specific problem,

thereby accessing an opportunity to gain higher efficiency and performance. In that way, not only could unnecessary costs be reduced to some extent, but income could also increase, so that economic profits could be made by all stakeholders in such a business model (problem holders or end users, platforms as well as contributors) (Gassenheimer et al., 2013 & Mehmman et al., 2015). Whitla (2009) also believes it is a more efficient way to cope with complex problems, since crowdsourcing would help companies to mobilise much more human resources than traditional approaches. What's more, as Behrend et al. (2008) present, despite it perhaps not being the original intention of stakeholders, the project does let the individuals involved obtain a wider vision as well as more social connections.

Through the information which the authors found in reality, JD crowdsourced logistics sees the benefits it provides as consisting of: cost saving, enhancing efficiency, and improving service quality. Firstly, the payment for 'contributors' is based on specific orders instead of traditional contracts, which means the various labour costs for traditional employees could be saved to a large extent. Therefore, compared with traditional businesses, the situation that O2O businesses face is totally different. The decentralised and highly volatile nature of orders make routine planning extremely complex. Currently, only the use of crowdsourced logistics can increase the efficiency of delivery. Nevertheless, with the utilisation of online techniques, information can be communicated in a fairly clear and timely manner, which is also a way of improving service quality. Therefore, it is necessary to highlight that, the financial profits are no doubt the most important factor driving companies to pursue crowdsourced logistics, and that the most significant value it engages in is business models which fulfil the gap of decentralising express services over distances, which also leads to the exploration of a totally new market. That is also to say that crowdsourced logistics is an approach which can cope with the high volatility of demand through the adjustability of prices.

According to the description above, both the theories and the empirical studies support the advantages of crowdsourced logistics, focusing on cost reduction, enhancing

efficiency as well as improving performance. Moreover, both Mr. Wang and Whitla (2009) mentioned that one of the significant functions of crowdsourced logistics is to deal with complex problems. It seems like the opinions from both sides are quite similar, but it is also necessary to note the differences between them. First of all, both sides support the notion that crowdsourcing results in cost saving. The reason Gassenheimer et al. (2013) and Mehmman et al. (2015) argue this, is because they see the unnecessary processes and organising costs crowdsourced logistics could save. Whereas, what Mr. Wang presents, is more about labour cost reductions. Due to the utility of crowdsourced logistics, the company can only see their 'freelance delivery men' as an open labour capacity, there whenever they need, instead of hiring workers and paying them by month as well as taking care of their insurance and other social responsibilities. Although he mentions a similar point of view to that of the theoretical side, it is not a main aim to save money. Secondly, despite the potential higher efficiency offered by crowdsourced logistics being mentioned by both sides, the reasons they present are different. According to Gassenheimer et al. (2013), crowdsourced logistics is able to enhance service quality and quantity because it can gather more professional workers to solve specific issues. While from the perspective of Mr. Wang, his company decides to pursue crowdsourced logistics due to the efficiency limitations of existing logistics models when dealing with decentralised O2O business. This is also the reason why they see crowdsourced logistics as a way to achieve greater efficiency. The company identifies that such benefits of crowdsourced logistics depend on cooperation, and what Gassenheimer et al. (2013) argues can only obtain weak support. Last but not least, Behrend et al. (2008) argue that the wider visions and more social connections crowdsourced logistics could bring to all stakeholders (platform, contributors, end users) was not mentioned during the interview with Mr. Wang. Seeking the reason, it is mainly due to the different focuses. Managers who work with entrepreneurs are more concerned with direct, short-term profits, financial gain is always treated as being the most important part, whatever the topic. That might be the reason this factor is ignored. Meanwhile, it is not always easy for a middle manager to gain a macro view, that could

also lead him to ignore this factor.

Through the description above, despite managers from industry and researchers in the area of crowdsourcing holding distinctive opinions, the advantages which crowdsourced logistics could provide are quite similar. It is clear that logistical service performance would be improved by crowdsourced logistics not only in terms of efficiency, but also in quantity and quality. In addition to the cost reductions, crowdsourced logistics is also able to provide wider visions and social connections, which actually means potential human resources for all stakeholders in the industry.

5.1.2. Potential Risks

In the meantime, just like every other business model, crowdsourcing is not a perfect solution. As a new concept which is growing, the risks it brings, or should we say the weakness are fairly significant as well. The low level of control is no doubt one of the most significant risks of crowdsourced logistics. Gassenheimer et al. (2013) see this issue as one that can lead to a set of other risks. Indeed, the utilisation of crowdsourcing makes the resolution of problems an open access issues, which must involve much more participates than traditional business models. In this situation, it is not easy for the company (problem holders or platform) to properly take charge of the overall working process. Due to the amount of participants, communication costs would rise, while various uncertainties might show up as well. Once control of the working process is lost, the service quality would be seriously impacted in a negative way. The evidence from reality also supports such theories as well. As Mr. Wang introduces, one of the biggest obstacles the company has to face is setting behavioural standards and trying their best to train and regulate ‘contributors’ during the working process. Nevertheless, striking a balance between users’ demands and contributors’ services, as well as achieving good communication is one of the most important jobs of the platform, and obviously, this was not easy. Through viewing this situation of the company, it is not hard to understand how important and difficult it is for the company to take control over

of the working process.

Another issue which was also mentioned by both the researchers and in the information the authors found from reality was the risk of 'legal conflict'. Whitla (2009) and Martin (2016) agree, believing that due to the uncompleted status of newest concepts, for instance, crowdsourced logistics, there must be some issues which do not one hundred percent meet the existing regulations. Despite the growing and changing nature of both the new concept and regulations, during such periods, some conflicts are unavoidable. In reality, according to the information the authors found, there was conflict over the express delivery license. In order to assure service quality to some extent, a professional license for delivery men in the express industry is required by the Chinese government. Whereas, the real situation in the area of crowdsourced logistics is that not everyone holds a license, some of the 'contributors' would just like to use their free time to deliver several goods for payment, which might lead to chaos for the overall industry in the near future. What's more, although there is no article showing that tax issues could be a potential area of conflict, during our interview, Mr. Wang mentioned this problem. Most of the 'contributors' could gain better payment through the JD crowdsourced logistics platform because they do not need to pay tax. Delivery men could only get 6 CNY per order, and it is not easy to calculate all the orders they have taken per month and decide whether they need to pay tax and how much that would be. This results in a dark side of the platform, and a legal conflict could happen at any time.

Apart from these risks mentioned by both sides, there is also a significant risk, or in other words, obstacle as was argued by Mr. Wang during the interview, which is the huge initial cost, not just in terms of financial expenses, but also time. That is also the main reason the management team of JD hesitated transitioning between their existing express team and crowdsourced logistics. Even though the management decided to establish this project, it still took them an extremely long time to prepare.

Other risks are also highlighted by important researches, such as the disturbance of irrelevant resources and the lack of contributors, despite this, there is no evidence from

reality that can directly prove this, though some information also corroborates the existence of such issues. The main purpose of the ‘freelance delivery men selection and training’ program is aimed at screening the irrelevant human resources. Whereas, as mentioned above, the wages for delivery men from JD crowdsourced logistics are much higher than traditional express service providers. Seeking the fundamental reason, in order to compete for human resources and so avoid the risk of a lack of contributors, JD has no choice but to pay more.

As a sum, the establishment of crowdsourced logistics faces various risks. Lower control over should be concluded to be the most important factor that requires companies to pay attention at all times. The existing legal conflicts need more communication between companies and government. Whereas the high initial costs of such programmes might be an unavoidable obstacle for all companies that are willing to do it. Furthermore, there is also the high possibility of facing the risks of too much irrelevant resources, as well as contributor shortages.

5.2. How is Crowdsourced Logistics Implemented?

According to the description in section 4, the current situation of JD crowdsourced logistics is clear. Based on the comprehensive infrastructure and large scale of the partners and end users of the JD Group in the area of O2O business, JD crowdsourced logistics smoothly gained its target market in quite a short time. After one year of implementation, JD crowdsourced logistics has already gained markets in the first-tier cities in China, such as Beijing, Shanghai, Guangzhou and Shenzhen and most second-tier cities like Hangzhou etc. What’s more, the expansion of the project is being carried out continuously. In order to ensure adequate capacity, JD on the one hand, transferred a part of its original logistics team as the initial ‘crowd’, and attracted professional workers from express companies and other potential ‘contributors’ with higher economic rewards. While to confirm the service quality, a set of ‘contributor’ selection and training programmes were held by the JD Group as well. Further, the credit

management and online evaluation system for ‘contributors’ could also confirm their service quality, efficiency and performance.

So far, crowdsourced logistics is still not a profitable project. While, as Mr. Wang presents, one of the most significant obstacles is how to regulate and control the service performance of such a mass of contributors without strict management measures, so that contributors can feel more comfortable to work and meet JD’s requirements at the same time. What’s more, although JD crowdsourced logistics is flexible and has good infrastructure, some requirements from their partner stores, such as the large number of demands made in a limited timeframe, or cold chain distribution are still hard to fulfil. In addition to political issues, social debates, as well as the inconvenience of the smart phone application operation, for a comprehensive and stable crowdsourced logistics system, much work remains to be done in the future.

As presented above, Howe (2008) outlines ten rules of crowdsourcing implementation. According to this book, to implement a good crowdsourced platform, accurate problem definition, target crowd identification as well as the right attraction and award measures for crowds should be considered first. Then, one must not forget to keep one’s own capacity, and reasonably manage the crowd. During the operation process, contribution selection, task separation and efficient utilisation of the crowd need to be highlighted. Finally, do not forget the importance of maintaining the balance of power among all stakeholders.

When we look at crowdsourced logistics in China. Although various problems and weakness exist and may be hard to get over in a long period, through their implementation, the main idea of the project and the further prospects for managers, it is clear that the implementation of such a business model is consistent with theoretical guidance. Therefore, despite there still being numerous shortcomings with this business model, its recent development has been on the right track.

5.3. What are the Prospects of Crowdsourced Logistics?

This part of the analysis will focus on the influences on or potential uncertainties with the further development of crowdsourced logistics, which will consist of both outside and inside environments, so that all potential influences can be identified. Due to this aim, a PESTEL analysis of the overall societal environment and a SWOT analysis for the project itself are necessary. Afterwards, through summarising all aspects of impacts, the prospects will show up, as well as what is required to be done for further development.

5.3.1. PESTEL Analysis for External Influences

Political

As mentioned in section 4.8. the ‘thirteenth five years plan of China’ in 2015 spoke to the important status of logistics development in China (http://www.gov.cn/xinwen/2016-03/09/content_5051375.htm). Obviously, from the perspective of the Chinese government, the importance of developing their logistics industry was identified, the government would like to invest more in the area of innovative logistics. For crowdsourced logistics, as an innovative new concept that just started, this general politic is no doubt good news for its further growth. Therefore, it is easy to predict that the future development of crowdsourced logistics will obtain more support from the government and its execution will be smoother.

On the other hand, some obstacles might be unavoidable when developing crowdsourced logistics in the near future. The delivery men license issue, which was discussed above will no doubt become a regulatory conflict. Despite the training program for ‘freelance delivery men’ due to the aim of confirming service quality, it is not possible for this to replace the license. To deal with this, companies must attempt to communicate with the government to change the situation together.

What's more, what happened recently, is that most local governments in China began preparing to publish new regulations for the use of electric bikes (<http://gx.people.com.cn/n2/2016/0503/c179430-28261244.html>). Formerly, electric bikes were the most common transportation method for deliver men, and due to financial reasons, most of them use electric bikes that will not fulfil the new regulations. This will also be a big problem for companies, since their capacity might be significantly decreased in this period, and in order to recover this capacity, companies may have to put effort into seeking appropriate solutions.

Economic

Despite the economic growth of China having slowed down, it has still not stopped growing (<http://www.wsj.com/articles/china-sets-economic-growth-target-of-6-5-to-7-for-2016-1457137605>). Compare to the preceding several decades, people have more money to consume and start to focus on their quality of life. A convenient lifestyle is something most people would like to achieve, that is also the motivation behind O2O and home delivery businesses. Whereas the appearance of crowdsourced logistics is exactly aimed at completing O2O business' functions, and so providing more convenience for every customer. Moreover, since the increasing average income in China, the amount of people that can afford smartphones has become extremely impressive (<http://www.innovationiseverywhere.com/o2o-why-china-leads-the-online-to-offline-revolution/>). Due to the nature of crowdsourced logistics, all smartphone owners could be seen as potential end users. Which is to say, in the near future, the demands of crowdsourced logistics could gain gradual growth, and the markets would no doubt extend. This fact also shows the motivation and necessity of developing crowdsourced logistics. Further, because of the 'Thirteenth Five-Year Plan' more investors would see the potential of the logistics industry, so that they would be more willing to put their investments in this area. Therefore, companies which would like to establish or develop crowdsourced logistics would have the chance to obtain more financial support. That might also drive the high-speed development of

crowdsourced logistics in the near future.

Social

With the development of Chinese society, people's thinking is gradually changing, young people nowadays in China are more willing to invest in their quality of life, as the authors described above. Meanwhile it is hard to deny, with the development of internet, online shopping has already become a part of life for many people, according to (<https://www.internetretailer.com/2016/01/27/chinas-online-retail-sales-grow-third-589-billion-2015>), in 2015, Chinese online sales reached 589 billion, and the growing trend will not stop. What's more, as was also mentioned before, smartphones and the internet, especially WI-FI have already become a common thing, or even life necessities in modern society, which provides a pool of potential consumers of O2O business. Therefore, due to the increasing trend of O2O demands, crowdsourced logistics will be needed by more and more people as well.

On the other hand, it is also necessary to highlight the rapid development of society overall, which has led to more young people seeking opportunities in big cities (<http://oa.shxyj.org/UploadFile/20130926008/2015-09-18/Issue/klri4fsb.pdf>). In recent years, more and more young people are preferring to stay in first-tier cities like Beijing and Shanghai, though most of them can earn little, and live in rural areas inside the cities. This situation makes them extremely desire any opportunity to gain more money. That is also why JD crowdsourced logistics would like to attract this group of people.

Somehow, debates in society still exist. Also as mentioned, end users have doubts about the threat to their personal information as well as financial risks. Those might be barriers to its expansion. Malhotra & Van Alstyne (2014) also argue that, the crowdsourcing model might be a good way for companies to avoid social responsibility and eventually make everyone becomes a source of 'cheap labour' without any social allowances. Considering the recent situation of crowdsourced logistics, that might be a

big problem and lead to social conflict in the future.

Technological

Nobody nowadays can doubt the rapid development of the internet in recent decades, the rapid development of computers and smartphones are recognisable as well. Such techniques are the infrastructure of O2O business and crowdsourced logistics. According to Hennigs et al. (2012), one of the most significant limitations of online shopping is the lack of shopping experience. People can hardly feel the products as they could in real stores. While thanks to the appearance of virtual reality technology (VR), this issue may no longer be a problem in the future (<https://www.google.com/get/cardboard/get-cardboard/>). Just as Google presents, VR is now tending to enter the computer communication consumer electronic market (3C market). Through such technologies, everyone could obtain a more realistic shopping experience in their own homes, providing an opportunity for O2O businesses to attract more potential consumers.

On the other hand, with technological improvements, more limitations of the existing logistics model, including crowdsourced logistics might be realised. The nature of human dependence is a good example. The existing logistics industry, no matter which model it follows is labour intensive, which means labour wages could be a big part of total costs. If transporting capacity could instead be fulfilled by machines, then this total might be greatly reduced. The utility of UAVs in the area of express which was first executed by Amazon might be a suitable solution. Despite their current experiments, such a solution is still not easy to spread throughout the entire market, though basically, it does enable one to deliver products and could be the next trend (<http://www.amazon.com/b?node=8037720011>). A similar example is the driverless cars developed by Google and Volvo Group etc. When the technology can be maturely applied, it will also be a way to replace recent logistics models. At that time, crowdsourced logistics will have to choose from adjusting to and integrating with such new techniques or dying (<https://www.google.com/selfdrivingcar/>).

Legal

Although the demand for crowdsourced logistics in China seems fairly clear, it still needs to be admitted that, as a new thing, both itself and recent legal regulations will need to change in order to find a suitable way of existing in its current execution in reality. Two major legal issues over crowdsourced logistics have arisen now concerning taxes (mentioned above), and the debate about whether such business models are legitimate.

Just as we know Uber, to be one of the pioneering crowdsourced companies in the world, when it first entered markets, there was a lot of debate about its legality. Even now, it still has a hard time to run its services in many countries. In China, although companies would like to communicate with the government, such problems still need to be resolved (<http://tech.sina.com.cn/i/2015-05-27/doc-iavxeafs8162681.shtml>).

Similar problems could happen in crowdsourced logistics as well, especially due to the tax blind spot it leads to. For further sustainable development, crowdsourced logistics have to realise such risks and attempt to communicate with the government as much as possible.

Environmental

The most important issue in this area is the ignorant attitude of managers. During the interview, nothing about the environment was mentioned at all, so there was a lack of useful information. Which is why we lack the data to describe this topic in the area of crowdsourced logistics.

According to previous articles, the sustainability of sharing economies has been confirmed by various researchers (Böckmann, 2013 and Puschmann & Alt, 2016 etc.). Cohen & Kietzmann (2014) believe through the effects of 1. Fewer trips, 2. A modal shift, 3. Distance reduction and 4. Increased efficiency, the sharing economy can be a more sustainable business model, decreasing waste and consumption. Whereas, when

we talk about crowdsourced logistics, a form and expression of a sharing economy, its sustainability could be confirmed as well through the discussion of this research. Additionally, unlike traditional distribution, crowdsourced logistics could easily solve the last-mile issue with the use of capacity near demand points, so that last-mile consumption and waste could be decreased to an extent.

In reality, more utility of electric bikes, less professional delivery and more passing delivery will reduce the total consumption of natural resources and pollution. However, more demand also leads to more waste because of the 'Rebound Effect' (Wijkman & Rockström, 2012), so it might also possibly result in more consumption eventually. Finally, without a good routine and operation plan, such a project might cost much more than traditional business models.

Summary

Based on the discussion above, the overall situation of crowdsourced logistics is clear to us. Both positive and negative factors which would influence the growth of crowdsourced logistics can be found. Although there are and will be much support from the political, technical and social, as well as economic areas, due to its immature nature, the obstacles and risks which may easily cause its failure are still various. What's more, due to the rapid development of technology, crowdsourced logistics could face challenges from other unknown areas at any time. All in all, crowdsourced logistics, as a relatively new concept for most of people, is still fragile and needs continuous operation within the overall environment, especially needing more communication with the government. Also, due to the nature of the crowdsourcing business model, its future is fairly dependent on changes in the external environment, any alterations could result in a big change in the trend of its development. However, on the other hand, we should also recognise that people, especially those who work in the logistics industry desire to find a way to add value for stakeholders in all aspects, and people will definitely seek more convenient lives. In addition to the support from technical, political and economic areas, the development of crowdsourced logistics is still full of motivation.

5.3.2. SWOT Analysis for Internal Environment

Thus section on the SWOT analysis will mainly focus on the internal situation of JD crowdsourced logistics and the overall industry. Since there might be several relevant points of view mentioned above, the authors will emphatically discuss the rest of content. In that way, a more comprehensive picture of the prospect of crowdsourced logistics will show up eventually.

Strengths

The value of crowdsourced logistics was discussed in the last section, and consist of service performance improvements and financial benefits. The key strength of crowdsourced logistics should be highlighted as the business gap it fulfils. With the development of O2O business, the desire for a decentralised, timely logistics service for random orders is getting increasingly stronger. This kind of irreplaceable function of crowdsourced logistics is the key strength of crowdsourced logistics. It completes the functions of O2O business, and also changes people's daily lives in its unique way.

To further narrow it down to JD crowdsourced logistics, according to the description of the JD Group, the main business of the company is ecommerce, the major platform for O2O business. In addition to the significant substantial number of end customers and partners it has, JD wields significant power of influence on the market. By the force of the JD company, the implementation, as well as further expansion of JD crowdsourced logistics will be made smoother than for other competitors.

Weaknesses

It is easy to understand, no matter how excellent a project appears, the key factor for determining its real status should be concluded from its earning situation. However, this part is the key weakness of JD crowdsourced logistics. According to the existing resources the authors reviewed, there is no information that shows the income of JD

crowdsourced logistics. In fact, there is not even any evidence to prove any financial profits are attributable to the overall logistics department of the JD Group. In other words, although the logistics function has been owned by the JD Group for many years, a profitable way of operating it remains undiscovered. That is definitely not a sustainable business.

Seeking the deep reason, logistics is always seen as a support for the main business of JD. Despite the fact that the development of this part is required as well, the starting point of JD is to support its main business in gaining a greater market share all the time, instead of achieving benefits to the department itself. Also because of this, compared to other professional logistics services providers, JD logistics finds it hard to obtain enough attention and investment as other competitors could. This is the second weakness of JD crowdsourced logistics.

What's more, as mentioned in section 4, according to the feedback from 'contributors', the published smartphone application has several problems that negatively impact upon the user experience, which might reduce the passion of 'contributors'. Other significant weaknesses discussed previously consists of the lower level of control over capacity, especially in the area of regulating and supervising 'contributors', as well as the regulation conflicts with governments. Last but not least, there are still some demands from partner stores which cannot be fully met. The instances presented in section 4 most significantly include where many orders are made within limited time and cold chain requirements.

Opportunities

Although at this present stage, crowdsourced logistics mainly just services the inter-city O2O business, as it develops, it will eventually become a common concept. By that time, it is fairly possible that more business models based on this new platform will have been created. What is more important is that despite the rapid expansion of JD crowdsourced logistics, according to its current achievements, it is still working on

market exploration for second-tier cities, such as Hangzhou, Qingdao etc. Whereas the truth is, due to the huge scale of China, there is still extremely great market potential which exists in third-line and even lower cities. If it is possible for crowdsourced logistics companies to exploit such potential markets, the value could be fairly impressive.

Other opportunities such as investment opportunities, support of government and market demands are mentioned in the final section.

Threats

It is correct that JD crowdsourced logistics is one of the first crowdsourced logistics project in China. We should also note that there are also increasingly more crowdsourced logistics companies showing up rapidly, and most of them are professional logistics service providers. As mentioned, the logistics business is seen as fulfilling a supporting role in the JD group, so what JD crowdsourced logistics gains from the company will definitely not be the same as what their competitors could invest in similar projects. As more and more competitors show up, in addition to the growing maturity of the concept, JD crowdsourced may hardly be able to maintain its current strength.

Other threats include the growth and appearance of other techniques, regulation changes, as well as a lack of ‘contributors’, since more and more competitors would compete for the capacity pool in the future.

6. Conclusion

The purpose of this thesis concerns figuring out the overall development situation of crowdsourced logistics, as well as its future prospects in China. Due to these aims, in this conclusion section, all answers to the research questions, depending on the previous analysis would be presented one by one. Afterwards, some general recommendations for companies which are starting or would like to enter the crowdsourced logistics industry will be discussed as well. Finally, a self-reflection for the thesis itself combined with some suggestions for further researchers will be presented at the end of this thesis.

6.1. Summary of Finding and Conclusion

6.1.1. The Concept of Crowdsourced Logistics

As mentioned, in the authors' opinions, crowdsourced logistics is an online based platform designed to gather and match delivery orders and suppliers close to each other at any time. While just like how every coin has two sides, nothing can be evaluated as being unilaterally good or bad. On the one hand, crowdsourced logistics has had an irreplaceable impact on the further development and expansion of O2O business. Further, it is also possible to increase companies' financial benefits, and achieve unlimited higher or lower capacities at any time without unnecessary costs and with higher quality. Last but not least, there are also some social benefits that can be gained through the utility of crowdsourced logistics. Therefore, it is necessary to highlight that all the profits of crowdsourced logistics are created for all stakeholders in the system, consisting of problem holders, platform operators, contributors as well as the end users. But on the other hand, crowdsourced logistics could lead to various new problems in the meantime. More difficulties with overall control could lead to heavier workloads and chain reactions like irrelevant resources, disturbances and contributor shortage risks. Not to mention the sizeable initial investments, social worries and regulation

conflicts. It is also hard to say that paying contributors higher wages instead of being responsible for their social insurance is a sustainable or even a fair method of trading.

6.1.2. How is Crowdsourced Logistics Currently Implemented in China?

Due to the irreplaceable effects it provides to the O2O industry, crowdsourced logistics is identified as one potential approach to encouraging upgrades to the logistics industry. Since most such projects have been established for about a year, the markets they have captured are mainly focussed on the first-tier (Beijing, Shanghai, Guangzhou, Shenzhen) or other major cities (provincial capitals). The support of developed techniques, social demands, as well as demographic dividends of China, frame building and supply capacities are measured successfully. Also because of the huge potential unexplored markets, there are many opportunities for its further expansion. At last, as mentioned, the project of JD crowdsourced logistics was integrated with DADA Express recently. In the researchers' opinions, this kind of integration might also be a development trend of crowdsourced logistics.

6.1.3. What are the Prospects of Crowdsourced Logistics?

According to Mr. Wang, the overall crowdsourced logistics industry has great ambition. The industry aims to compete with professional contributors with their traditional express provider models in the short term, eventually leading to the overall logistics industry's upgrade together with Rookie Plan in the long term. Somehow, through the PESTLE analysis of the external environment and the SWOT analysis of the internal environmental of the crowdsourced logistics industry, it seems their goal will not be easy to achieve.

Positive influences are clearly seen. The irreplaceable function of crowdsourced logistics is the key strength of this industry. Strong political support from governments

combined with attention from capital markets provides powerful motivation for its further development. In addition to the market desire as well as a relatively mature technical infrastructure, the development of crowdsourced logistics has achieved a solid foundation to some extent.

Meanwhile, the weaknesses of crowdsourced logistics are significant as well. Regulation conflicts and legal issues are yet to be resolved, and those may need plenty of time. With its expansion, whether the existing methods of attracting capacity can continue to work sustainably is still a question. There are also still debates and worries in society which might hinder its expansion. With the development of technologies, further competition will not only arise in the area of increasing internal actors, but concerns over potential new business models and techniques will arise from the external environment.

All in all, the real situation of crowdsourced logistics' future is full of opportunity and challenges.

6.2. Recommendations

With the growth of crowdsourced logistics, the value this business model brings, as well as the vast potential markets will be discovered and confirmed by more capital holders. Hence, there will be ever more companies attempting to get access to this industry in the near future. Thus, depending on what is presented through this thesis, some general recommendations for such potential participants are presented as follows.

First of all, before entering the crowdsourced logistics industry, it is necessary for companies to consider whether you can afford the high initial investment, and do you have the patience for the long period of preparation. For most SMEs (small and medium entrepreneurs), big capital investments without effective economic returns will mean an extremely high risk. Therefore, at this present stage, the researchers only recommend large enterprises consider pursuing crowdsourced logistics.

Secondly, in the stage of operation, how to attract sufficient high quality capacity, and get control over this capacity in a reasonable way at the same time is identified as being key to determining the success of a project. Therefore, a set of capacity attraction, selection, training and regulation measures are quite necessary. In this section, JD crowdsourced logistics can be seen as a good example for all potential participants in the industry. But on the other hand, for dealing with the mass of ‘contributors’, such measures are still not enough. Companies should aim to establish their own platform and ‘crowds’, and must do more to find appropriate ways to regulate ‘contributors’ with fewer constraints.

Last but not least is communication with governments. Although the crowdsourced business has developed for years already, there are still various debates and regulatory conflicts. In addition to the big differences with traditional businesses, for the further development in reality, plenty of operation with society as a whole is necessary. The awkward situation between Uber and regulatory bodies is a famous case. This example also reminds companies to try their best to build more connections with governments to gain a sustainable future for the development of crowdsourced logistics. Otherwise, as more and more attention is attracted by crowdsourced logistics, the regulatory conflicts could become more serious and might directly lead to the failure of the overall industry.

6.3. Self-reflection

With the guidance of scientific methods, the research questions which were initially set have been answered completely. Therefore, this can be classed as a successful research project. But nothing is perfect. During this research, despite the authors trying their best to complete the thesis, there were still some problems that are hard to ignore. Among them, one of the most significant problems was in the area of data collection, not only in the primary, but also the secondary part.

As we know, crowdsourcing is still quite a new concept, most people have never even heard of it. Especially in the area of crowdsourced logistics, the relevant theories which the authors could find from the internet were so few. This situation no doubt leads to a weakness in the section devoted to frames of reference. For similar reasons, there were also relatively few companies who had pursued the crowdsourced logistics model in reality, and the number of managers who work with this issue is not big. Companies are not willing to share some information which might link to their operational details. This is also why it was extremely hard for the researchers to find case companies and arrange interviewers. Although the interview with Mr. Wang was eventually secured, the researchers failed to gain other interviewees, and the information the authors could gather was still limited. Therefore, in the section on empirical study, the information may not be substantial enough for further analysis.

Depending on the research done for this thesis, some useful suggestions were identified and proposed by the researchers. The first suggestion is to choose the topic that you are most interested in. Researching is not a short process, and will require your passion all the time. Without interest, the overall process could be very painful, that would also influence the results of your research. Secondly, get a deep understanding of the area that you are going to research before your official work begins. Otherwise, it is neither easy for you to choose a suitable topic in the beginning, nor to keep on the right track during your research. The last piece of advice is try your best to plan the research process in the initial period. Even if the research methods and strategies of the thesis are quite simple, you will still need a comprehensive plan that will take care of every detail you may predict as possible. In this research, due to the purpose and some basic knowledge that was searched for and gathered in the initial period, a case study was chosen as an appropriate research strategy, and the researchers decided to pursue a telephone interview as the main approach to get into the case company to gain primary data. Finally, before the primary data collection, the researchers carefully discussed and set the question list for the interview.

6.4. Contributions and Suggestions for Further Researches

This research describes the overall development situation of JD crowdsourced logistics, as well as figures out the results of the utility of crowdsourced logistics in reality and its future prospects in China. Further, some general recommendations are presented by the researchers. Because the time since crowdsourced logistics first appeared is quite short, very little previous research worked on this area. How is the concept implemented in reality? How different is it from what the authors conceived in the research? What is the future of this concept? Bringing all works together, this research definitely fulfils the gap in this area.

As for suggestions for further research, since the integration of JD crowdsourced and DADA Express, what happens with the new company could be an interesting topic. Also, since the concept is still rapidly developing and adjusting, how the concept operates in real situations from beginning to maturity is worth researching. Last but not least, Chinese companies nowadays still lack sustainable thinking, this is also why this research falls short in providing information in this area. Therefore, research examining the sustainability of the execution of crowdsourced logistics in detail will gain much attention as well.

Appendix

Fig. 2.1. Sharing economy's drivers (Source: Bockmann, 2013)

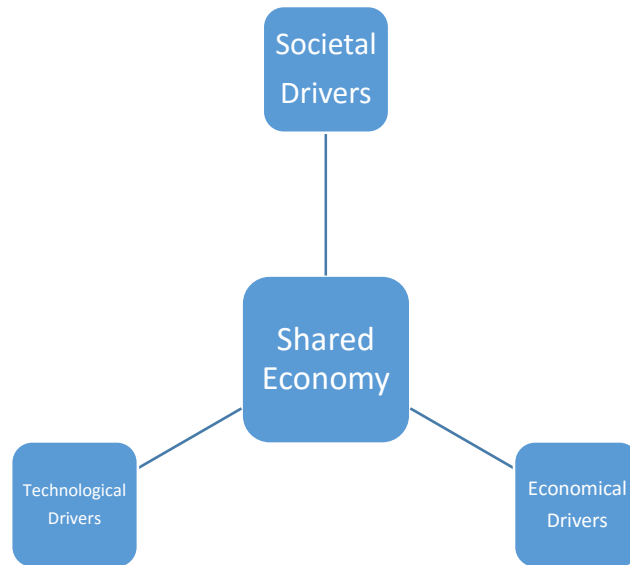


Fig. 2.2. Working process of sharing economy (Source: Henten et al. 2016)

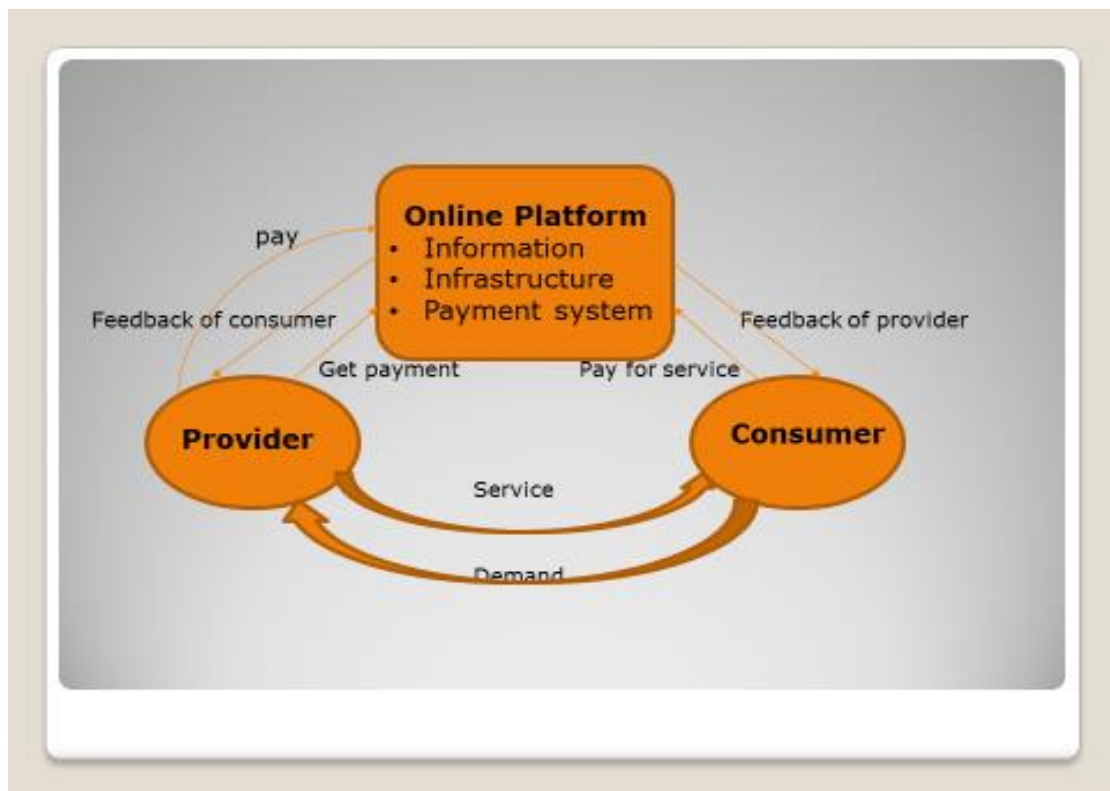
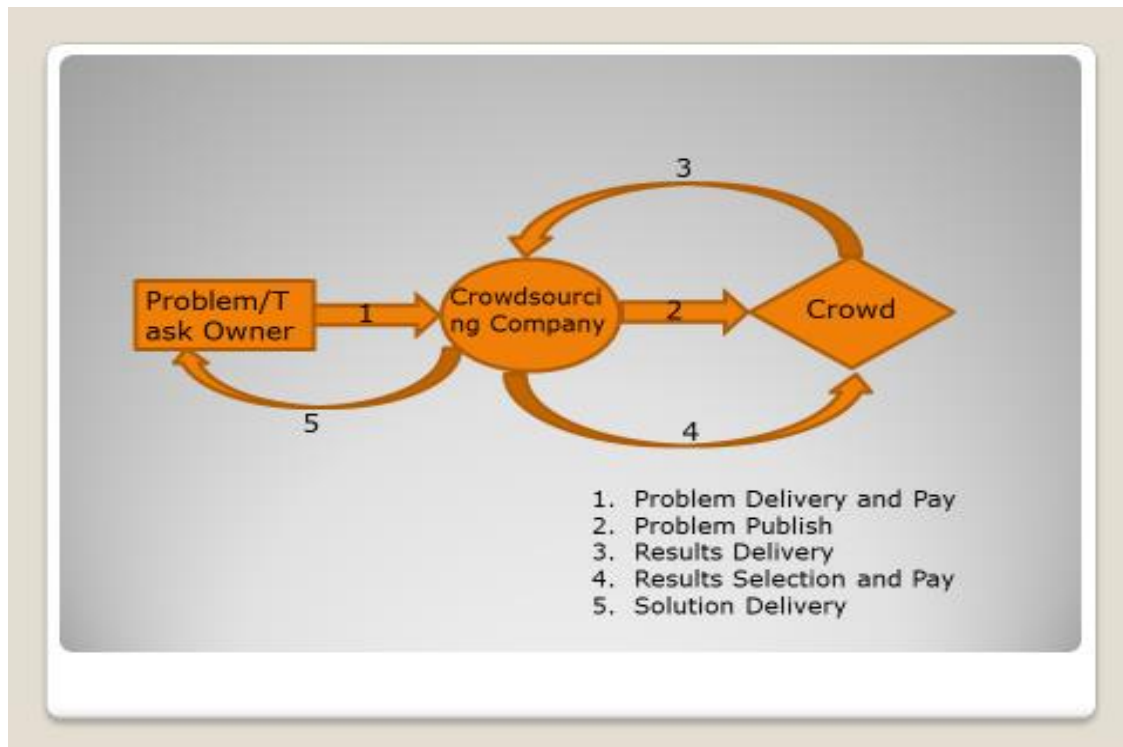


Fig. 2.3. Working process of the crowdsourcing (Source: Whitla, 2009; Chanal, 2010; Vukovic, 2009)



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