Peer-to-Peer Parcel Delivery

Exploring governance arrangements to protect sustainability as a public value
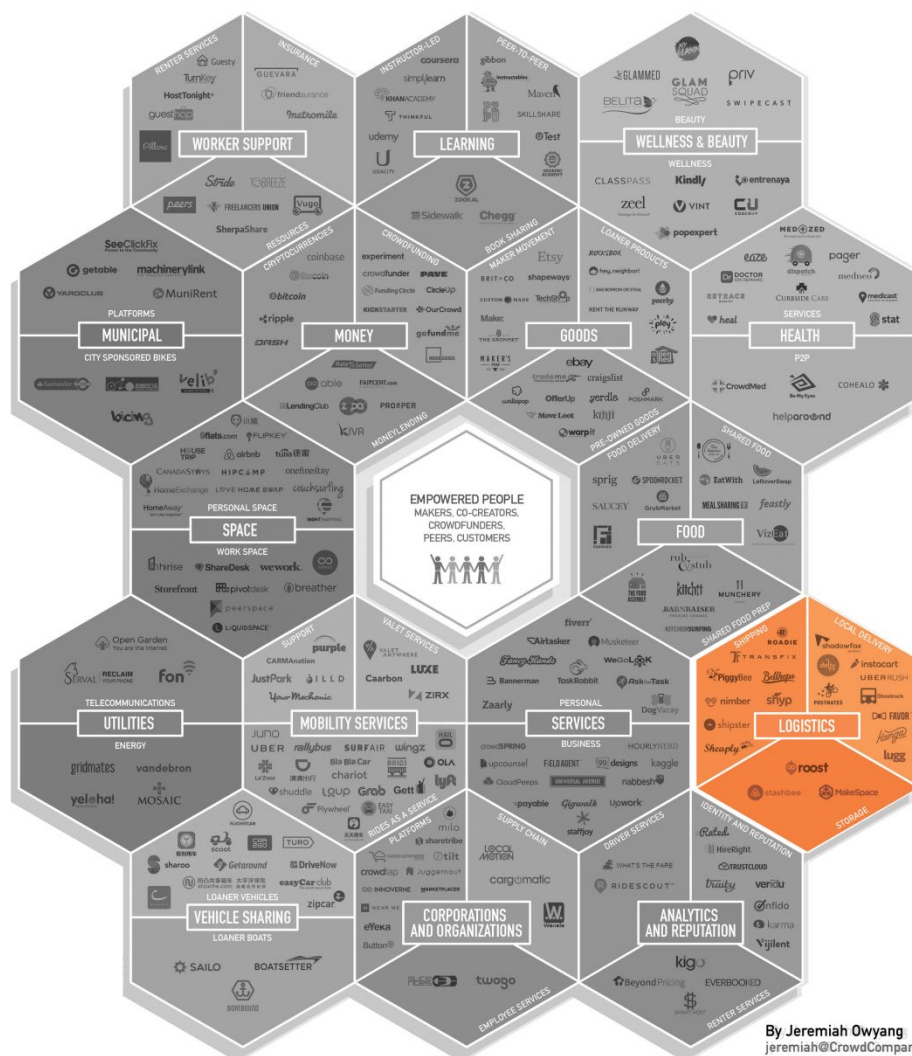
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Executive Summary

The sharing economy shows significant growing potential, with Goudin *et al.* (2016) estimating growth "exceeding 25%; in some sectors it could even reach 63% by 2025". Peer-to-peer parcel delivery initiatives are a relatively new, fast growing part of the sharing economy, and recent research showed that the environmental impacts of these initiatives are not aligning with initial sustainability claims. This is especially important since Codagnone *et al.* (2016) found that these types of initiatives often act in an institutional void and can cause regulatory and policy challenges, which could make the road to sustainably transform the Dutch transportation sector more difficult.

This research explores the development of the peer-to-peer parcel delivery sector in the Netherlands and ways sustainability can be protected when dealing with these kinds of initiatives. Through literature studies and semi-structured interviews with several actors in the field of peer-to-peer parcel delivery, this exploratory research investigates the possibilities of different governance arrangements concerning peer-to-peer parcel delivery.

The goal is to gather new insights into how governance arrangements can safeguard sustainability when looking at peer-to-peer parcel delivery platforms. The main research question is: *What kind of governance arrangements can be used to safeguard sustainability when dealing with peer-to-peer parcel delivery?* This question will be answered by focusing on the following sub-questions:

> • *Which actors are active in the Dutch peer-to-peer parcel delivery sector?*

> • *How do peer-to-peer parcel delivery platforms incorporate sustainability?*

> • *What are the potential societal benefits and risks related to sustainability within peer-to-peer parcel delivery?*

> • *What governance arrangements are currently in place for peer-to-peer parcel delivery initiatives and how effective are these in safeguarding sustainability?*

> • *What are possible governance arrangements that fill the gaps that exist in the current regulations regarding the safeguarding of sustainability?*

The results of this study can be used to expand the knowledge base and implement regulatory and governance related changes. This exploratory research investigates the possibilities of different governance arrangements concerning peer-to-peer parcel delivery, and using Bevir's governance tables will gain insight in the types of measures currently used and where gaps exist. However, it

does not take into account the effectivity or quality of these measures, and further research into these subjects is recommended.

The governance dimensions as defined by Bevir can be summarized in a table, which can be seen below in table 1. There are three main systems; Hierarchy, Market, and Network, and three kinds of instruments they can apply; Economic Instruments, Communicative Instruments, and Legal Instruments. The combination of systems and instruments result in nine dimensions, where each dimension has its own possibilities, strengths and weaknesses. By visualizing the kinds of governance arrangements and their corresponding dimension, a clearer image of the type of arrangements currently in place can be created, and suggestions can be made on the type of arrangements that are missing.

	Hierarchy	**Market**	**Network**
Economic Instruments	Taxation on undesired behaviour	Enlarging freedom of choice for consumers	Subsidy for innovation
Communicative Instruments	Information on behaviour change	Increase transparency of markets	Creating a forum for negotiation
Legal Instruments	Ban of undesired behaviour	Norms for market actors	Codify outcomes of negotiations

Table 1: The Governance Arrangement dimensions of Bevir (2012)

As mentioned above, this research is exploratory and uses a combination of qualitative research methods. Literature studies provide theoretical background knowledge, while semi-structured interviews with different actors in the Dutch transportation sector yield the practical challenges and possibilities in the field of sustainable development and peer-to-peer parcel delivery initiatives. The data gathered from the interviews is analysed and coded with the use of ATLAS.ti and linked to challenges and benefits found in the literature study, making it possible to answer the sub-questions, and finally, the main research question:

What kind of governance arrangements can be used to safeguard sustainability when dealing with peer-to-peer parcel delivery?

Four main types of actors can be discerned in the Dutch transportation sector that are relevant to peer-to-peer parcel delivery initiatives, the peer-to-peer platform actors, government actors, market actors and knowledge institutes. The initial idea of peer-to-peer parcel delivery is centered around people picking up and delivering packages on travels they would make even if they would not deliver

these packages. This gives peer-to-peer parcel delivery the potential of being more sustainable than traditional parcel delivery, but the way the current initiatives operate has actually significantly higher external costs on areas like air- and noise pollution, congestion and climate change. The cause of these higher external costs, and the lower priority of sustainable core values in the interviewed platforms can be traced back to the way users and drivers interact with the platforms, with users not accepting a certain degree of potential delays and drivers not actively logging their rides, but instead accepting delivery requests and making trips specifically for these requests. Apart from this, there are also risks of these initiatives to have a negative impact on labor contracts and heighten the vulnerability of employees through non-employer based insurance and pensions. This can potentially be changed by the rearranging of current governance and the introduction of new ones. The different governance arrangements are organised in three different sectors (Hierarchy, Market and Network), each having three different dimensions (Economic, Communicative and Legal) in which actions can be taken.

Currently, two Hierarchy arrangements are in place for peer-to-peer parcel delivery initiatives, the ACM registry and a regulation that caps the amount of money citizens can make tax free. Both are not directly aimed at safeguarding sustainability. In the transportation sector, the Green Deal ZES is an arrangement in the Network system that does focus on sustainability, and specifically aims at making transportation within cities emission free, and to reduce transportation induced congestion. Involving peer-to-peer parcel delivery initiatives in test projects for this Green Deal can give these initiatives the chance to show client organizations their environmental added value while creating connections between peer-to-peer parcel delivery initiatives and the other actors in the transportation sector. An increase in knowledge dissemination from both governmental- and market actors on the impacts of package delivery and the different types that are available can spread awareness in both the people that need products delivered and the people active as drivers for peer-to-peer parcel delivery initiatives. Aside from the spreading of knowledge, it is also possible for the platforms to make it economically less interesting to drive solely for one package, by introducing stack able bonus systems, while still making it interesting enough for people to deliver one package if the trip would be made even without the delivery. For the ordering of packages, government actors can implement higher excise duties on less sustainable delivery options. To protect the value of working contracts and the benefits of workers, the effectivity of systems bound to employees instead of employers, like the proposed Benefits Portability system, should be researched.

Recommendations for practice

In this thesis, the gaps and weak spots of current governance arrangements are researched, and potential governance arrangements are mentioned. However, by exploring the scope of the possibilities instead of providing a detailed plan for only one, the quality and effectivity of these proposed arrangements are not researched. It is important for the relevant actor to research any of the proposed arrangements, before implementing them. Peer-to-peer parcel delivery initiatives are urged to forge relationships with not only potential clients, but also with other actors within the transportation sector, and to participate in Green Deal ZES transportation living labs. For government actors, with an eye on the growth of the sharing economy as a whole, it would be very valuable to research what forms a system like the Benefits Portability system could take. For municipalities, providing a clear framework of the coming policy changes concerning transportation within the city centre for multiple years will give market actors incentive to invest in sustainability. The involvement of traditional market actors and peer-to-peer parcel delivery initiatives in the development of city logistic solutions like cargo hubs could create a one-of-a-kind transportation network that is highly efficient.

Recommendations for further research

Peer-to-peer parcel delivery as a research topic is still relatively new. Although the research of Merckx et al. (2017) provided an interesting insight in the emissions of peer-to-peer parcel delivery initiatives, a broader, comparative study researching the external costs of several peer-to-peer parcel delivery initiatives would be extremely valuable. It is also recommended to research the social impact of peer-to-peer parcel delivery on its drivers. It is advised to research the possible erosive nature of peer-to-peer working contracts in the Netherlands, since the Dutch system could also be susceptible for these issues—exemplified by the legal case between Deliveroo (a crowd-based food delivery service) and one of its employees over employee conditions and benefits (Zembla, 2018). A comparison of the societal impacts of sharing economy platforms between countries with weaker social systems (e.g. the USA) and the Netherlands could provide helpful insight in whether the dangers of quality- and terms of employment erosion are as pressing here as they are abroad.

Chapter 1: Introduction

A move from business-to-consumer organizations towards peer-to-peer organizations can be witnessed all over the world. A realisation is dawning that the population has access to a lot of unused material that can be rented out for profit. Some of these initiatives, such as Airbnb (2017, 2018), claim to have a positive impact on sustainability. However, the term 'sustainability' is particularly broad and increasingly vague. Not only can it refer to one of the 'triple bottom line' terms of people, planet, profit (is it socially sustainable, ecologically sustainable, and economically sustainable?) but it is also important to remember the frame of reference—to what is it compared?

Peer-to-peer initiatives are a relatively novel concept. Because these initiatives are new, governments have yet to take clear stances on them, and more often than not clear policy concerning these platforms is lacking. Think, for instance, of how long it took for the Dutch government to create a clear policy on house subletting through Airbnb: only last year (2017) did the government come up with the first rules concerning the platform, which was started in 2008. For a long time, certain parties in the coalition prized the innovative nature of the platform, while the city centre of Amsterdam was flooded with more and more tourists—to great annoyance of the local residents, who had to deal with the nuisance this created (Rengers & Remie, 2017).

This also holds true for peer-to-peer parcel delivery initiatives, which after the success of sharing economy initiatives such as Airbnb, Uber, and Deliveroo have the potential to be the next 'big thing'. Although peer-to-peer parcel delivery is a long way from being as popular as the peer-to-peer taxi- and housing services, there is a very real possibility that growth in both the sharing economy and the expected growth of the number of packages to be delivered (currently 300 million packages per year with a growth rate of 10%) will create the conditions for explosive growth of this market, especially with Goudin *et al*. (2016) expecting an annual growth of the sharing economy "exceeding 25%; in some sectors it could even reach 63% by 2025". Little research has been done and little policy exists for these parcel delivery initiatives, but in the meantime they continue to operate and it is unclear in what ways they are impacting society, or if they are generally positive or negative (Carbone, Rouquet, & Roussat, 2017). The importance of ecological impact is now accepted by the majority of the Dutch population, and is now on its way to be considered as important if not more important than the social and economic impacts. However, the intricate details of the climate problems and their proposed solutions are hard to grasp, and more often than not, proposed solutions turn out to be less desirable than first thought, or to have unexpected rebound effects (Frenken & Schor, 2017). An example of this rebound effect is an increase in travellers due to the affordability of Airbnb

housing compared to hotel rooms. In this example, the claimed impact reduction of staying in an Airbnb (Airbnb, 2018) compared to staying in a hotel would be diminished by the increase in travellers, who transport themselves by cars, busses, or planes.

Although innovation is seen by some as a possible solution for climate change related problems, these potentially underwhelming (if not negative) outcomes and rebound effects prove that governmental institutions should not simply give free reign to these kinds of innovations. Proper governance arrangements can help guide these initiatives to realise positive impact while warding off negative rebound effects. Because sustainability is gaining societal attention as a public value, this thesis will focus on the question: *What kind of governance arrangements can be used to safeguard sustainability when dealing with peer-to-peer parcel delivery?*

This question will be answered by focussing on the following sub-questions:

- *Which actors are active in the Dutch peer-to-peer parcel delivery sector?*
- *How do peer-to-peer parcel delivery platforms incorporate sustainability?*
- *What are the potential societal benefits and risks related to sustainability within peer-to-peer parcel delivery?*
- *What governance arrangements are currently in place for peer-to-peer parcel delivery initiatives and how effective are these in safeguarding sustainability?*
- *What are possible governance arrangements that fill the gaps that exist in the current regulations regarding the safeguarding of sustainability?*

 To be able to provide a clear answer to the proposed research questions, this thesis consists of several chapters. First, in chapter 2 a literature study will explain the ways peer-to-peer parcel delivery initiatives fit inside the bigger systems of the sharing economy and the circular economy, as well as the broader environment these initiatives operate in. After that, in Chapter 4, an overview of the current Dutch transportation sector will be described. This will show what kind of peer-to-peer parcel delivery initiatives are operational in the Netherlands, and which institutions are involved with these initiatives. Interviews will be conducted with two platforms, and with a selection of important actors across the field, the results of which can be found in Chapter 5. In Chapter 6, the interviews and the literature review will help to define the ways peer-to-peer parcel delivery initiatives incorporate sustainability. This chapter will also provide information on the potential benefits and risks of peer-to-peer parcel delivery initiatives when focussing on sustainability, and to see what regulations and governance arrangements are currently in place regarding peer-to-peer parcel delivery and sustainability. Based on these results, Chapter 7 will explore the possibilities of

governance arrangements to better protect sustainability. Finally, in chapter 8 the conclusions, recommendations and discussion are presented. This process is shown in the Research Flow Diagram in Figure 1. This thesis is intended to be a exploratory research, exploring the options that are available for governance arrangements to safeguard sustainability when dealing with peer-to-peer parcel delivery initiatives. Evaluating the effectivity and quality of these measures will not fall in the scope of this thesis.
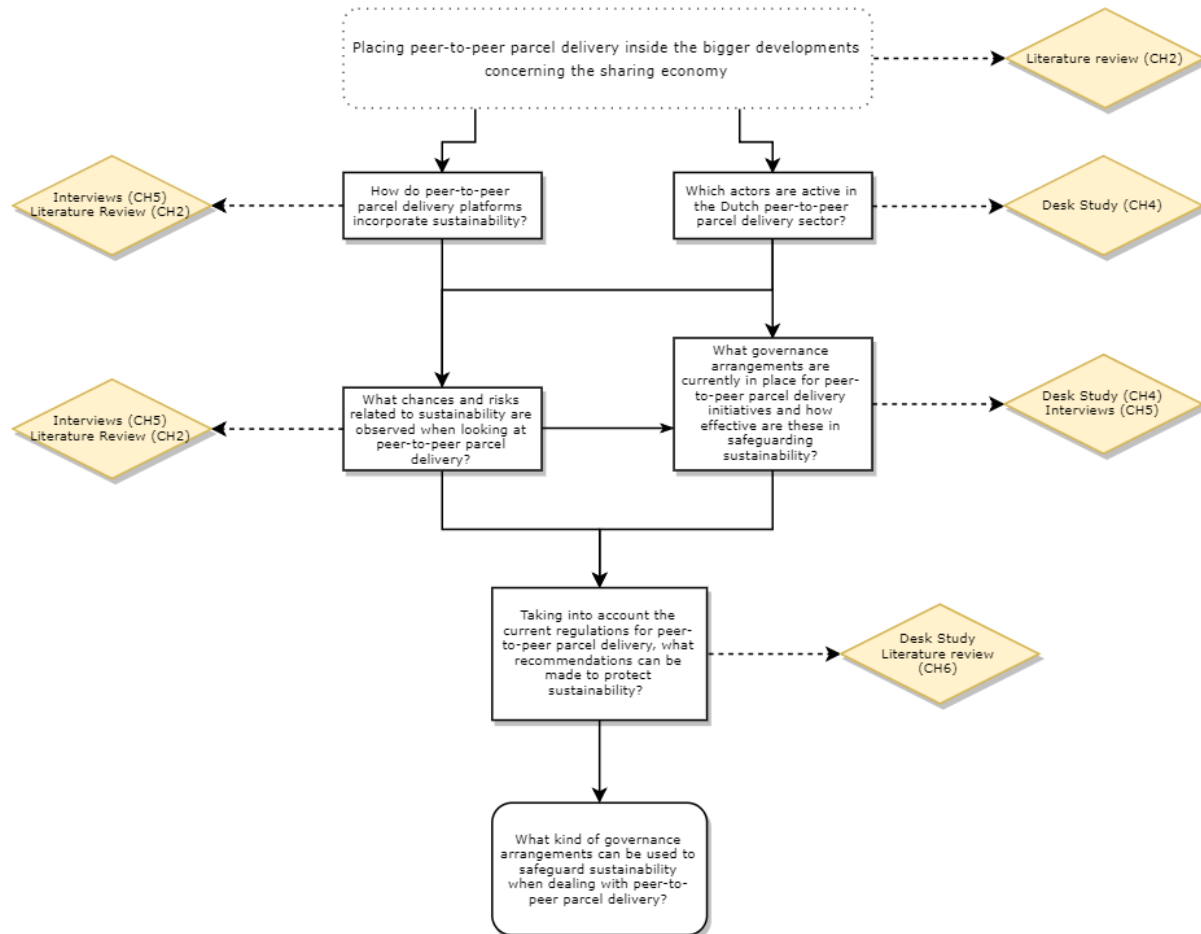

Figure 1: Research Flow diagram

Chapter 2: Literature Review

To better understand the environment (both generally and institutionally) that peer-to-peer parcel delivery initiatives operate in, it is important to research the broader systems involved. How do peer-to-peer parcel delivery initiatives fit into the greater trend towards a sharing economy and the circular economy? And what are tools for governments and other actors to influence society? What values does the government deem important? How can one provide a clear visualisation of a term as broad as sustainability? These questions will be answered in the following literature review. First, the terms 'circular economy' and the 'sharing economy' are explained, since these are the two larger themes peer-to-peer parcel delivery operates in. After this, peer-to-peer parcel delivery is examined more closely, with a focus on the potential benefits and downsides of this phenomenon discussed in the available literature.

After reviewing the trends in the sharing and circular economies, the societal system is studied. A closer look is given to public values, what they are and which of them are currently considered important. To define sustainability, the 'triple bottom line' by Elkington is further explained. The phenomenon of institutional void is described along with emerging methods of governance as opposed to traditional top-down governing to show the different possibilities that are available to guide society.

Circular Economy

The circular economy has been gaining a lot of attention in the last decade. More and more companies and governments are recognizing the fact that resources are finite and society is burning through them at a high rate. Circular economy is aimed at slowing down the use of virgin stock and the replacement of products, and instead focussing on prolonging the use of these products, making it easier to repair them and easier to re-use parts (Ellen Macarthur, 2017). In Figure 2 the circular economy is depicted by the Ellen Macarthur Foundation. The smaller circles are the most desirable. The bigger the circles get, the more energy is needed (and lost) to reintroduce resources into the system. In the example of municipalities and national governments, the re-use of building materials present in today's building stock is a challenge. A great example of the efforts to map the stock present in society is the shared PUMA (Prospecting the Urban Mines of Amsterdam) project of, among others, the AMS institute, Metabolic, and TU Delft, where reserves of steel, aluminium, copper, and lead are mapped for future use (AMS, 2016). However, this step is relatively far removed from the core user phase. One dimension of the circular economy that is closer and

relatively inexpensive energy-wise is the sharing of resources, making use of present stocks of various objects (be it tools, cars, houses etc.) in society, which is also referred to as the *sharing economy*.

OUTLINE OF A CIRCULAR ECONOMY

PRINCIPLE 1

Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows
ReSOLVE levers: regenerate, virtualise, exchange

Renewables   Finite materials

Regenerate   Substitute materials   Virtualise   Restore

Renewables flow management   Stock management

PRINCIPLE 2

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles
ReSOLVE levers: regenerate, share, optimise, loop

Regeneration   Biosphere

Farming/collection¹

Biochemical feedstock

Parts manufacturer

Product manufacturer

Service provider

Share

Recycle

Refurbish/remanufacture

Reuse/redistribute

Maintain/prolong

Biogas

Cascades

Consumer   User

Collection   Collection

Extraction of biochemical feedstock²

PRINCIPLE 3

Foster system effectiveness by revealing and designing out negative externalities
All ReSOLVE levers

Minimise systematic leakage and negative externalities

1. Hunting and fishing
2. Can take both post-harvest and post-consumer waste as an input

Source: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Braungart & McDonough, Cradle to Cradle (C2C).

Figure 2: Possibly one of the most famous images in the field of circular economy; the MacArthur Foundations' visualisation of the circular system

Sharing Economy

Frenken *et al*. (2015) define the sharing economy as "consumers granting each other temporary access to under-utilized physical assets (also known as idle capacity), possibly for money." Frenken & Schor (2017) show that *the sharing economy* has been present in human society for a long time in various forms. Sharing is something humans from all classes and races have done for ages (Frenken & Schor, 2017; Velzen, 2018). However, the sharing economy has seen drastic changes in the last decade. Sharing used to be something that occurred within circles of people that knew and trusted one another—one would not be as quick to lend one's tools to someone who they had never met

before. However, in recent times, it is not uncommon to lend your tools, or even your car, to someone you have never met before. Schor (2014) calls this 'stranger sharing', which is facilitated by the use of platforms. These platforms bring together people searching for something, and people who provide it, but who have never met. The risk that comes with this is significantly higher than the 'traditional' sharing with people who are known and trusted, and so the platforms are also used as a verification service. Having 'reviewing' options of users is not uncommon and can be found on sites like Airbnb (accommodation), Snappcar (transportation), and Alibaba (products) among many others. The size and diversity of the sharing economy gets highlighted by the Collaborative Economy Honeycomb 3.0, created by Jeremiah Owyang (2016) in Figure 3. The honeycomb spans 16 different sectors, from Worker Support to Wellness and Beauty. Comparing version 3.0 to the first version made in 2014, which only had 6 sectors, clearly shows how quickly these kind of platforms can develop.
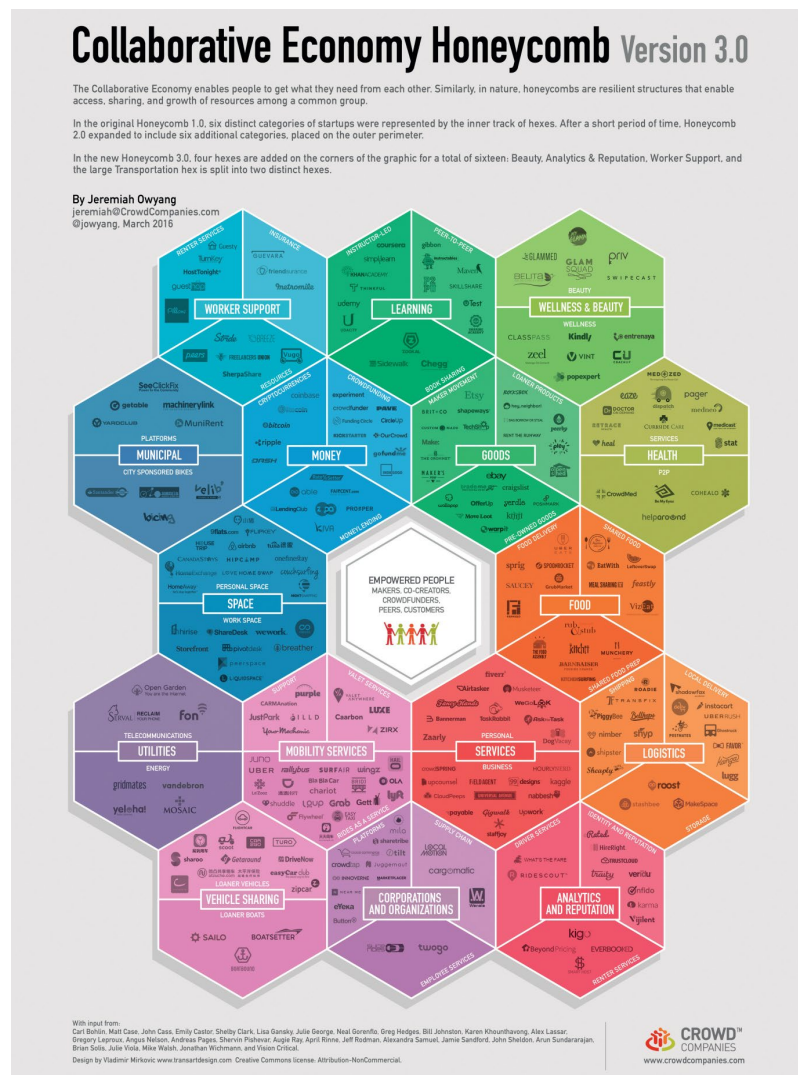

Figure 3: The Honeycomb visualisation showing a diversity of sectors and initiatives active in those sectors (Owyang, 2016)

In literature that mentions the roles of different actors in these new situations, such as Juujärvi & Pesso (2013) and Steen & Van Bueren (2017), only a small side of the traditional institutions pay attention to these innovative ways of community- and economic building. It is important to take into account the impact peer-to-peer initiatives can (and will) have on the totality of our society, especially when looking at the growing role sustainability plays as a widely accepted public value. There is an urgency for traditional institutions to be prepared for a future in which roles in society change from a producer-consumer-investor based society to one in which the people transcend from consumer-only to producer and investor as well.

In 'The Passion and the Interest', Codagnone *et al.* (2016) create a practical definition for sharing economy initiatives that try to capture the myriad of different projects: 'the expression sharing economy is commonly used to indicate a wide range of digital commercial or non-profit platforms facilitating exchanges amongst a variety of players through a variety of interaction modalities (P2P, P2B, B2P, B2B, G2G) that all broadly enable consumption or productive activities leveraging capital assets (money, real estate property, equipment, cars, etc.) goods, skills, or just time'. Though very broad, this definition specifies various dimensions in which sharing economy initiatives can vary, e.g. profit/non-profit, the various forms of interaction and types of assets used. In the same article, a typology is made for sharing initiatives based on two dimensions: their profit goals (for profit versus not for profit) and their main focus (peers centred/led versus organisation centred/led), see Figure 4.
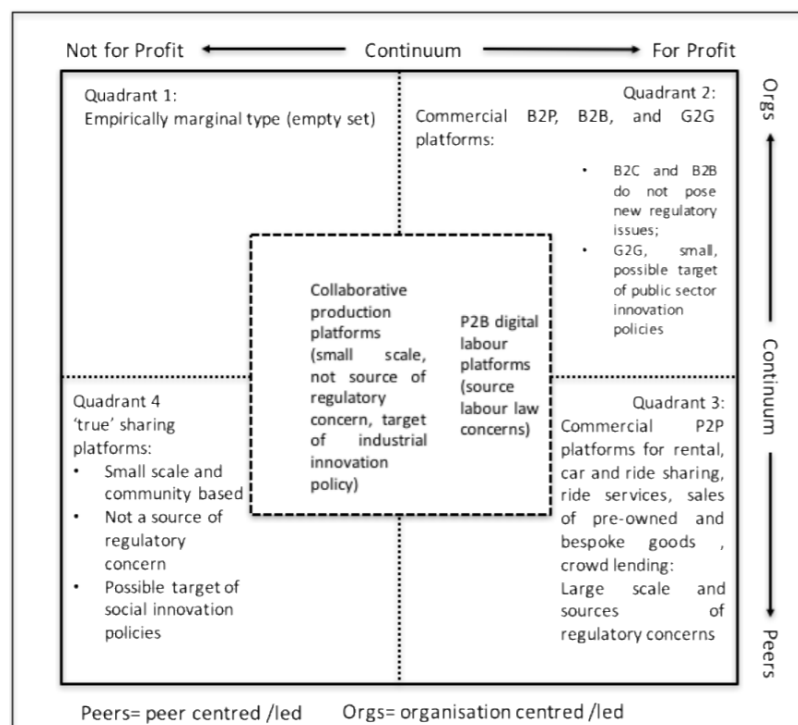

Figure 4: Codagnone's quadrant of the platform economy (2016)

Quadrant 1 is an organisation centred/led initiative that has no profit interest. This set turned out to be marginal and does not need to be considered.

Quadrant 4 contains peer-to-peer platforms with no profit interest (think lending initiatives) that are often active on a local scale. They have a potential for social innovation, but are currently in no need for action for they do not raise problems or questions in the existing regulatory framework.

The middle square consists of platforms that can be peer-to-peer, peer-to-business or business-to-peer. Their profit goals aren't fully black or white and according to Codagnone *et al*. they are currently no regulatory concern.

Quadrant 2 contains several commercial platforms that focus on business-to-business, government-to-government or business-to-peer. These platforms can be split into two streams, government-to-government platforms (like MuniRent, through which municipalities can rent heavy-duty utilities from each other), which as of yet are still small and scarce. Codagnone *et al*. think that in the future these initiatives could play a role in the innovation of the public sector, and will then receive policy support, but this is not yet needed. The second stream consist of the business-to-business and business-to-consumer platforms, which already are subject to full regulation, no matter the degree of innovation.

Quadrant 3 contains the platforms where regulatory and policy challenges are found according to Codagnone (2016). In this quadrant the commercial peer-to-peer and peer-to-business platforms are found. These platforms usually have a substantial amount of users, often act in an institutional void and the most successful ones have a noticeable effect on the traditional actors in industries. The quadrant above doesn't only clearly show the diversity in the sharing economy, it also pinpoints where the institutional and societal friction takes place when looking at these platforms. Examples of platforms in this quadrant are Uber in the transportation sector, Airbnb in the housing sector, but also the peer-to-peer parcel delivery service examined in this thesis.

Peer-to-Peer Parcel Delivery

Peer-to-peer parcel delivery (also known as crowd shipping or crowd logistics), started just like the sharing economy on a small scale, where citizens would place a call within their networks to see if someone they knew had the opportunity to pick something up or deliver something on the way to their destination (Merckx *et al*. 2017). Similar to personal transportation and housing, this idea has been incorporated and formalized by the industry. In its original form, peer-to-peer parcel delivery did not change considerably. People who were part of a certain platform could place calls for package delivery, and others could respond if this was on their route or close to it. Like most ideas, it

also underwent transformations—for instance, businesses can now place calls for so-called 'last-mile delivery' by freelancing transporters (similar to Deliveroo).

Since these platforms do not own the actual means of transportation (cars, bikes, etc.), but draw on the stock of materials present and owned by the crowds, their growth is not determined by how fast new materials (in this case cars and other vehicles) can be purchased, but by the size of the crowd willing to make their own stock available. Although they are not bound as much by financial conquests for investors and/or loans, this presents platforms with an entirely different challenge that does not bother the more 'traditional' organisations: the challenge of balance (Sampaio *et al*. 2017). Peer-to-peer platforms are not only dependent on accruing customers, and in that way exchanging goods for income, but also rely on a crowd of 'producing' users that is relatively in balance with the amount of consumers active on the platform (Sampaio *et al*., 2017). A simple example: if Airbnb has an abundance of consumers, but only a few people listing their houses and rooms, consumers will not be motivated to come back to the platform, as the platform offers too little to satisfy its user base. The platform will thus lose consumers and (potential) income. However, the same problem arises when the opposite situation occurs. If there are too few consumers relative to the amount of people offering their houses and rooms on the platform, after a while the 'producing' crowd will not find it worthwhile to invest time and energy listing their offerings, as the chance of them making money off of their stock is small. This eventually means the producing crowd will shrink, and the platform will also lose (potential) income. Luckily for Airbnb, these days it is hard to find people who do not know the platform, which signals an abundance of both producers and consumers. The same goes for Uber, Couchsurfing, Peerby, Snappcar, Blablacar, and a number of other initiatives spread over the broad spectrum of sharing platforms. Aside from the more general benefits of the sharing economy, studies focussing on peer-to-peer parcel delivery have found several potential benefits and disadvantages.

Potential benefits

The growth and accompanying complexity of the transportation and logistics sector is reaching a stage in its development where interconnected issues are becoming more apparent. These include environmental issues, inefficiency, and congestion in city centres and on important traffic veins between cities (Buldeo Rai *et al*., 2017; Carbone *et al*., 2017). Carbone *et al.* (2017) also mention how crowd logistics have the potential to reduce these issues by making use of the already present stock and guiding storing and transporting goods through a finely meshed network of connected citizens, thus cutting emissions and financially empowering citizens.

Potential Disadvantages

Although peer-to-peer parcel delivery provides a way of earning money with a relative low barrier, it is important to take into account several claims that this comes with a price tag (Bergeijk, 2017), where being unable to work, or experiencing inconveniences like a flat tire are not insured by the platform. These claims gain credibility when looking at Kuttner (2013), in which similar practices within the sharing economy are said to 'add to the erosion of the labour contract and to the increase of contingent labour'. Additionally, Singer (2018) and Weber & Silverman (2015) prove in their articles in the New York Times and the Wall Street Journal that the realistic amount of money earned is not what is broadcasted by the platforms. The unpleasant reality of trying to make a living on these platforms or being in competition with them has been made painfully apparent by the recent driver suicides in New York (Fitzsimmons, 2018).

The Flemish Institute of Logistics (VIL) released their research on Crowd Logistics in October of 2017 (Merckx *et al*., 2017).This research investigated crowd logistics as an alternative to 'business-as-usual' package transportation, as VIL noticed that crowd logistics as part of the sharing economy has been gaining popularity (although in the Netherlands, it is still only responsible for a few thousand packages per year, with the entire package delivery market containing 300 million packages per year and a growth rate of 10% per year (see interview ACM, Appendix 4). As mentioned before, the relevance of researching crowd logistics (and other trends within the sharing- and platform economy) lies in their scalability. The Crowd Logistics project of the VIL researched the external costs of traditional package delivery compared to the crowd logistics alternative. These costs were measured in five dimensions: congestion, noise, accidents, air pollution, and climate (see Figure 5). As can be seen in Figures 5 and 6, the researchers took several different scenarios in consideration. The Crowd Scenario in Figure 6 is based on the data received of the origins, destinations, and amount of packages carried by the delivering crowd active in the platform 'bringr', which was a crowd logistics initiative of bpost, the Belgian post office. 70% of the deliveries were short-distance (≤17 km), 24% were middle-long deliveries (≤ 55km) and the last 6% were long-distance deliveries (≤150 km). Transposing this to the Dutch environment, this would be equivalent to deliveries within and around cities like Utrecht (short, 70%), deliveries within the Randstad (middle, 24%) and deliveries within the entire country (long, 6%).

For the business-as-usual (BAU) scenarios, the most commonly driven route and driving parameters (time of delivery, average congestion, road type etc.) are used for transportation routes. For the Crowd scenario, these parameters are based on the data received by the platform. The difference between the BAU 1 and BAU 2 scenarios is the amount of packages delivered, where BAU 1 is based

on the average amount of packages delivered per trip, while BAU 2 is based on the delivery of a single package, comparable to the Crowd scenario. The difference in external costs between the BAU 2 scenario and the Crowd scenario are mainly attributed to the type of vehicle used (van vs. passenger car) and the average amount of kilometres driven per package.
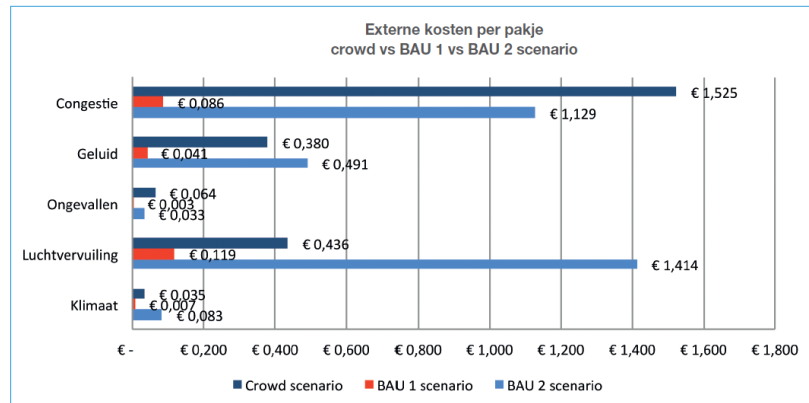

Figure 5: Figure taken from the VIL report showing the differences in external costs in the dimensions Congestion, Noise, Accidents, Air Pollution and Climate Impact.

As can be seen in Figure 5, the external costs of the crowd scenario are much higher than the external costs of traditional transportation services, which are mainly attributed to the fact that currently, these platforms do not have the necessary user base to make multiple deliveries per trip possible. In Figure 6 the researchers looked at what dimensions have to be adjusted in which ways to equal the external costs of the BAU 1 scenario. Three different scenarios came out of this research. If the user base of these kinds of platforms grew, and critical mass per delivery would increase, multiple packages could be delivered within the same trip, thus drastically reducing emissions per package. This gets supported by (Sampaio *et al.*, 2017). It would take 10 packages per trip to match the BAU 1 scenario. The 'original' idea of crowd logistics/peer-to-peer parcel delivery still proves to be the most sustainable option. Even if there is only one package being delivered, as long as the detour is not longer than 15 minutes for more than 6% of the total amount of trips made, the external costs are very low, even lower than the BAU 1 scenario. And the last scenario researched is the shortening of the distance driven per package. If the trips were 5 times shorter, the external costs would approach the BAU 1 scenario. However, please note the high impact traffic congestion would have on this scenario.
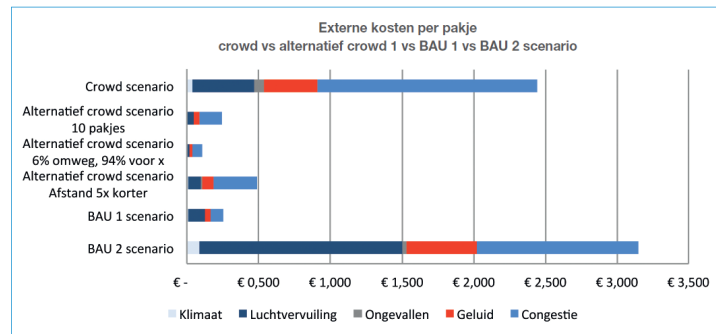
Figure 6: Image from the VIL report showing compound external costs of the different crowd scenarios and the two BAU scenarios.

Public Values

The way the government interferes with or interacts in certain areas of society is greatly decided by the meaning the government assign to certain public values. Public values are influenced by the constantly changing political arena, as well as by trends in society. Current relevant public values are noted by the WRR (the Dutch Scientific Council for Government Policy) as: accessibility, sustainability, transparency, privacy, and public space (WRR, 2000). Public values are not the same as the public sector, which consists of governmental organisations and institutions. The public sector is also not the only actor that tries to protect public values. The public sector applies different methods in relation to public values, in ways that they deem most effective. In the mobility sector, the sector this thesis focuses on, the market tries to protect these values, with the government assuming a regulating and controlling function (van Dijck, Poell, & de Waal, 2016).

Sustainability as a Public Value

Since sustainability is a very broad term, and rather unwieldy to handle in reports like this, John Elkington's 'Triple Bottom Line' (1998) is used here to clarify sustainability. The triple bottom line of sustainable development has three main pillars: environmental sustainability, economic sustainability, and social sustainability. Each of these three terms, and their combinations, is explained below.

- Environmental sustainability is the most commonly thought of aspect when talking about the general term of sustainability. To be environmentally sustainable means to not cross the ecological and natural borders of the planet. Consuming natural resources is sustainable as long as it is lower or equal to the natural rate of replenishment. Certain resources (like oil) have a very low replenishment rate, and are thus considered unsustainable when consumed.

- If an entity, be it an organisation, a city, or a country, produces a consistent operational profit over a long period of time, by using its resources in a ethical, efficient way, it is considered economically sustainable.

- If a social system is able to reach liveable and healthy communities for a sustained period of time, it is considered socially sustainable. Some important dimensions that are mentioned when defining social sustainability are a democratic form of governance, diversity within the population and connectedness.

- If an entity, be it an organisation, a city, or a country, is both economically and socially sustainable, it is considered to be equitable.

- If an entity, be it an organisation, a city, or a country, is both socially and environmentally sustainable, it is considered bearable.

- If an entity, be it an organisation, a city, or a country, is both environmentally and economically sustainable it is considered to be viable.

- If an entity, be it an organisation, a city, or a country, is socially, economically, and environmentally sustainable, it is considered to be *truly sustainable.*

In this thesis these dimensions of sustainability will be used to create a clearer image of the different impacts peer-to-peer delivery initiatives have. By showing the environmental, economic and social arguments for or against these initiatives, a better understanding of these initiatives will be achieved, which will strengthen the recommendations.
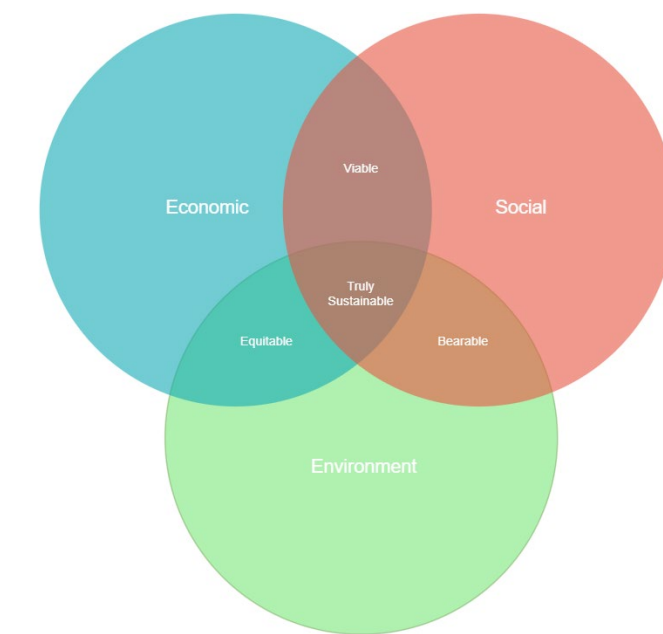

Figure 7: Sustainability Venn Diagram, based on Elkington (1998), created by author

Institutional Void

The developments that can be seen in the field of peer-to-peer services in relation to the protection of public values raise the question of whether current institutions can implement radical changes in their organisational model fast enough to remain relevant and reliable, or if the development of the institutional void will continue. Hajer (2003) defines the institutional void as follows: "there are no clear rules and norms according to which politics is to be conducted and policy measures are to be agreed upon", while Mair & Marti (2009) refer to them as situations where institutional arrangements that support markets are absent, weak, or fail to accomplish the role expected of them. To be more precise, "there are no generally accepted rules and norms according to which policymaking and politics is to be conducted" (Hajer, 2003). The term 'institutional void' does not imply a lack of the actual institutions, but points at policy problems, which require actions that go *beyond* the reach of the current institutions and policies. Mair *et al.* (2009) relate the institutional void to third world countries, such as Bangladesh, but these voids are also encountered in the developed world, and few examples are clearer than the policy enigma of initiatives operating in the sharing economy. Think of the discussion in the first half of 2017 that the Dutch Tweede Kamer had about whether to tax Airbnb as a hotel organisation or not.

Although a void like this can feel unfavourable for policy makers and civil servants, it can also be seen as a window of opportunity to reshape reality in a changing world, where the roles of the government, organisations, and the public are becoming less segregated and more adjusted into interlocking hybrids, ensuring adaptability and resilience in the face of climate change.

Governance and Coordination

Even those who are only remotely knowledgeable of policy and public affairs are usually familiar with the term 'governance.' A derivative of governing and government, it is also defined by Bevir (2012) as being applicable in a broader sense than the aforementioned terms as it includes all processes of governing. This means it can be done by governments, markets, or networks. The scale can also vary from systems to organisations to individuals. Bevir mentions the tools of governance such as laws, power, contracts, norms, and language among other things. Typically, three types of governance systems are distinguished:

Hierarchy systems can be best used for large systems that have a relatively clear purpose (Powell, 1990). For example: how the public sector is expected to pursue the public good. Management is an important part of these systems because of their size, with every unit (employee) managing units in the layer underneath it. Partly because of their size, hierarchies function as impersonal orders

implementing and enforcing rules. There is usually a lot of communication between layers, passing down orders from top to bottom and information from bottom to top. Hierarchies are often very efficient (if the right procedures are in place) in what they do and accountability is high. However, they have troubles adjusting quickly, are bad at complex tasks, and when procedures are suboptimal, can be notoriously inefficient and lethargic.

Market systems involve different actors/parties exchanging goods or services for an agreed-upon price, dependent on supply and demand (Powell, 1990). Actors that often deal with each other can formalize these interactions through contracts etc. In the Netherlands, some institutes from the governmental sector supervise the market system to ensure that the supply/demand equilibrium does not permanently get suffer from the forming of monopolies or cartels. Other than that, the actors enjoy quite some freedom to compete with each other. Markets benefit from stability and peace, and the competitive nature of markets provides space for innovation and cost reduction through e.g. making processes more efficient. However, with insufficient oversight, markets can develop monopolies or cartels, throwing off the natural balance of supply and demand. This oversight can be costly.

Network systems operate formally independent of each other, but rely on mutually beneficial relations exchanging resources such as materials, knowledge, and funds. As trust is fundamental between actors within these networks, long-term relationships are not unusual and a feeling of honouring reciprocity is common (Powell, 1990). Networks are known to be very agile, adaptable, and flexible. They are efficient at promoting change and easily mobilize actors. Since networks are sustained by reciprocity and trust, the level of reliability is high. However, as soon as networks become complex, they lose some of their flexibility, there is very little transparency, and certain actors can develop opportunistic behaviour.

The information mentioned above (Bevir, 2012; Powell, 1990) results in the following table:

	Hierarchies	Markets	Networks
Governance	Authority	Prices	Trust
Basis of relations among members	Employment	Contracts and property rights	Exchange of resources
Degree of dependence among members	Dependent	Interdependent	Interdependent
Means of conflict resolution and coordination	Rules and command	Haggling	Diplomacy
Culture	Subordination	Competition	Reciprocity

Table 2: Characteristics of different system (Bevir, 2012)

The different types of actors have a variety of tools and instruments at their disposal. These are categorized in three different types: economic, communicative, and legal (Closed Loop Supply Chains, 2016). For example, a typical governmental economic instrument is to tax or outlaw undesirable behaviour (which is seen as a typical command-and-control method). The different types of actors and examples of their various instruments are listed below:

	Hierarchy	Market	Network
Economic Instruments	Taxation on undesired behaviour	Enlarging freedom of choice for consumers	Subsidy for innovation
Communicative Instruments	Information on behaviour change	Increase transparency of markets	Creating a forum for negotiation
Legal Instruments	Ban of undesired behaviour	Norms for market actors	Codify outcomes of negotiations

Table 3: Different dimensions of Governance Arrangements within the three systems of Bevir (Source: Closed Loop Supply Chains Lecture 07-11-2016)

Concluding this chapter, the various dimensions of sharing initiatives operative in the circular economy, especially looking at peer-to-peer parcel delivery initiatives, offer interesting possibilities for society such as like financial independence, an increase in social connections and a more intensive use of stock already present in society, decreasing the need for virgin products. However, the literature studied also showed possible downsides, for example an increase in emissions due to the fact that instead of using the idle capacity of trips that are already being made, new trips are

specifically being made for the parcels. On top of that, the rise of contingent labour brings fears of the erosion of labour contracts and shifts the responsibilities of pension building and health insurance from the employer to the employee. Sustainability is currently considered to be a relevant public value, and to be able to make relevant, usable recommendations, the triple bottom line of John Elkington (1998) is used for clarity.

The sharing economy finds itself in a position where it is not unique in its noncompliance with traditional regulation, but that it can also be said that their form of business also does not apply to the current definitions and rules in place. When this is the case, an institutional void exists. This void offers both challenges and opportunities, as it gives governments the possibility to review and re-evaluate existing rules, regulations and arrangements. Where necessary, these can be scrapped or adjusted, or new ones created. Bevir (2012) and Powell (1990) show that governance goes further than top-down command-and-control regulation, but that there are hierarchies—markets and networks—which all have their strengths and weaknesses. Society can and should use these models and their respective instruments to take a good look at the development of the peer-to-peer parcel delivery sector in the Netherlands. A proper framework for these initiatives seems imperative to ensure that the benefits of these initiatives are granted while keeping the negative effects at bay. In the next chapter, the methods that are used to collect data will be discussed.

In this chapter, two research questions are partly answered. First, information is given on how peer-to-peer parcel delivery initiatives incorporate sustainability:

Peer-to-peer parcel delivery initiatives find their roots in the circular- and sharing economies. The circular economy aims to slow down the use of virgin stock by prolonging the lifespan of products, while the sharing economy consists of consumers sharing their idle capacity with other consumers, possibly for money. The decrease of idle capacity through sharing means that the materials and products in society get used more intensively, which will decrease the demand for new products. The term Sharing Economy ranges further than just the exchange of tools and materials, but also encompasses services that rely on idle capacity like housing or car rental. Actors and initiatives within the sharing economy can be fall in a broad spectrum, from profit to non-profit and from sharing between organizations to sharing between individuals. Peer-to-peer parcel delivery is an example of developing initiatives in the sharing economy. The initial idea of peer-to-peer parcel delivery centred around people picking up and delivering packages on travels they would make even if they would not deliver these packages. This would make this type of package delivery more sustainable than traditional package transportation.

After that, literature is used to look at the potential benefits and risks related to sustainability and peer-to-peer parcel delivery:

Peer-to-peer parcel delivery offers a possible solution for a multitude of problems that are emerging in connection to logistics, like air pollution, inefficiencies, and the congesting of city centres. The financial empowerment of citizens is an important benefit mentioned in literature.

However, it turns out that peer-to-peer parcel delivery also has potential downsides. In its current form, peer-to-peer parcel delivery is contributing to higher levels of congestion, noise pollution, the worsening of air quality and accidents. This can be explained by looking at the way these packages get delivered. Drivers are currently driving specifically of one package, instead of taking packages that are on the route they would drive anyway.

Chapter 3: Methods

In this chapter, the methods used for data collection and analysis are explained. First, the nature of the research being conducted is explored through the framework provided by Saunders *et al*. (2009). Then the methods of data collection and analysis are discussed. At the end of this chapter, the different relevant actors are proposed and the selection of interviewed parties is explained.

As the goal is to gather new insights into how governance arrangements can safeguard sustainability when looking at the relatively new phenomenon of peer-to-peer parcel delivery platforms, this research can be considered as an exploratory study (Saunders *et al*., 2009). Because there are two types of qualitative data gathering (desk research and semi-structured interviews), this study qualifies as a multi-method qualitative study (Figure 8). Exploratory studies are particularly useful to shed light on problems and challenges, and to give recommendations by combining the information that has been found. The results of this exploratory study can be used to expand the knowledge base and implement regulatory changes. This exploratory research investigates the possibilities of different governance arrangements concerning peer-to-peer parcel delivery, but it does not take into account the effectivity or quality of these measures, but using Bevir's governance tables will gain insight in the type of measures currently used and where gaps exist.
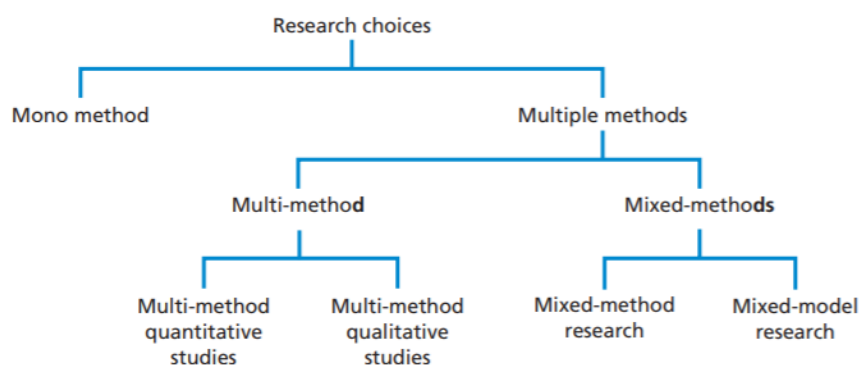
Figure 8: Different research methods (Saunders *et al*., 2009)

Data Gathering

The knowledge gained from the desk study will be complimented by semi-structured interviews with different actors in the field of peer-to-peer parcel delivery platforms. Semi-structured interviews are a form of non-standardised interviews whose format is especially useful for exploratory studies, since they are not dependent on a set structure, but on themes, giving the interviewer the freedom to react and delve deeper into unanticipated interesting subjects (Saunders *et al*., 2009). Before the interviews are conducted, an interview protocol with themes and general questions is prepared

based on topics and issues found in the desk study. The topics for the interviews conducted for this thesis include the role of sustainability within the organisation, partnerships and relations the organisation has, challenges in the field of sustainable parcel delivery, and how the organisations see future developments in the transportation sector. The interview protocols can be found in Appendix 3. These topics are then explored in a way that can vary from interview to interview. Taking specific organisational context into account is a key element of semi-structured interviews, and the freer form of the interviews compared to structured interviews ensures enough room to explore and go in-depth in subjects that are encountered in the interviews. The data is captured through both audio-recording and note taking and the transcriptions can be reviewed in Appendix 4.

Data Analysis

The data recorded in the interviews is subsequently transcribed and analysed through the qualitative research program ATLAS.ti. This is done by highlighting specific parts of the interviews and assigning codes and descriptors to these quotations. The quotations are made based on the relevant information they contain, and coded on relevant subjects like the type of actor, relationships between actors, challenges the actors deal with, perception of peer-to-peer parcel delivery initiatives, possible challenges concerning these initiatives and sustainability, perceived solutions for these challenges, and the role sustainability plays within each interviewed organization. A list of these quotations can be found in Appendix 5.

After the interviews are put through ATLAS.ti, they are analysed and the data found is linked to the knowledge gathered in the desk research. Similarities and contradictions between the multiple methods are highlighted, and relations are explored.

Finally, based on the results and analysis, different options for governance issues concerning peer-to-peer parcel delivery initiatives and further research are made.

Selecting the respondents

Platforms

Of the five active platforms in the Netherlands, interviews were held with the two platforms that responded positively to the interview request: Just Cargo and PickThisUp. A point of interest: these platforms differ slightly from the average peer-to-peer parcel delivery platform because it is only

possible to post assignments and not trips. Both platforms then contact drivers with the assignment. PickThisUp was interviewed on 28-05-2018 and Just Cargo on 31-05-2018.

Trade Associations

The Dutch transportation sector has connections with several trade associations, such as Thuiswinkel.org, the trade association for e-commerce (which represents 75% of the e-commerce market) and TLN (Transport & Logistiek Nederland), the trade association for transportation and logistics (the biggest in the sector with over 5.500 members divided in 15 submarkets). These two trade associations were considered to be the most relevant for this subject, and both trade associations were very interested in participating in the interviews. An employee of the sustainability department of Thuiswinkel.org was interviewed on 19-06-2018. A policy officer of TLN was interviewed on 23-05-2018.

Government

From the broad choice of governmental organisations the most fitting actors are chosen by studying their task descriptions. The regulatory organisation that would be able to supply the most valuable data for this subject is the ACM, specifically the directory Telecom, Transportation and Mail. Two employees from this directory were interviewed on 22-05-2018.

The ministries of Economics & Climate and Infrastructure & Waterways were approached for interviews, but declined to contribute. However, one employee did answer some initial questions through e-mail. The government is bound by international accords like the Paris Accords from 2015, and EU regulations. It was also made clear that because peer-to-peer parcel delivery initiatives are currently only responsible for a very small part of the transportation sector, no additional regulation would focus on them. However, they support and stimulate sustainable innovations through the Topsector Logistiek and the Green Deal ZES. The municipalities chosen here are those of Amsterdam and Utrecht. There were multiple reasons to choose these cities. For one, both municipalities are considered progressive, green, and liberal—claims which are supported by looking at their respective Colleges of Mayors and Alderpersons (both are lead by the Groen Links party). These cities are believed to fulfil front-runner positions in Dutch urban policy regarding green and sustainable subjects, and if a policy turns out to be viable in one of these cities, it is likely that others will follow suit (for instance, look at the spreading implementation of environmental zones, which started in Utrecht back in 2007). At the municipality Utrecht, an employee focussed on Clean Logistics was interviewed on 15-06-2018. An employee from the Urban Mobility Amsterdam Implementation Agenda (USLA) was interviewed in Amsterdam on 20-06-2018.

Having defined the research and substantiate the choice of methods and actors in chapter 3, chapter 4 will research the state of development of the peer-to-peer parcel delivery initiatives in the Dutch transportation sector. Other relevant actors in the broader transportation sector will be described as well, as will the regulatory environment peer-to-peer parcel delivery initiatives are active in. Governance arrangements active in the transportation sector will also be examined.

Chapter 4: Peer-to-Peer Parcel Delivery in the Netherlands

As seen from the report from Carbone *et al.* (2017), there is a general expectance for the sharing economy to grow significantly in the coming years. This growth is already visible in the peer-to-peer parcel delivery sector. In Appendix 1 is a table of peer-to-peer parcel delivery initiatives active in the Netherlands, including both national and international platforms. The international platforms were mostly founded between 2010 and 2013, while the national platforms followed suit only a couple years ago, from 2015 onwards. In this chapter, an overview is provided that shows which actors are involved in the Dutch peer-to-peer parcel delivery scene, their relations, and the rules, regulations, and governance arrangements that are relevant to peer-to-peer parcel delivery.

Actors

Platforms:

The platform actors contain all the peer-to-peer parcel delivery platforms, ranging from not-for-profit initiatives to profit driven organisations, fitting inside the ranges of (Codagnone *et al.* (2016) discussed in the theoretical framework. Peer-to-peer parcel delivery initiatives are growing worldwide. In the Netherlands, 5 national platforms are currently operational (Brenger, PickThisUp, Just Cargo, Sjipit and Trunkrs) and 5 international platforms have a range that also includes the Netherlands. More information on the international platforms can be found in Appendix 1. The platforms generally operate in roughly the same manner—drivers can post rides they are planning, and people with packages to send can advertise these as well.

1 Brenger
2 PickThisUp
3 Just Cargo
4 Sjipit B.V.
5 Trunkrs
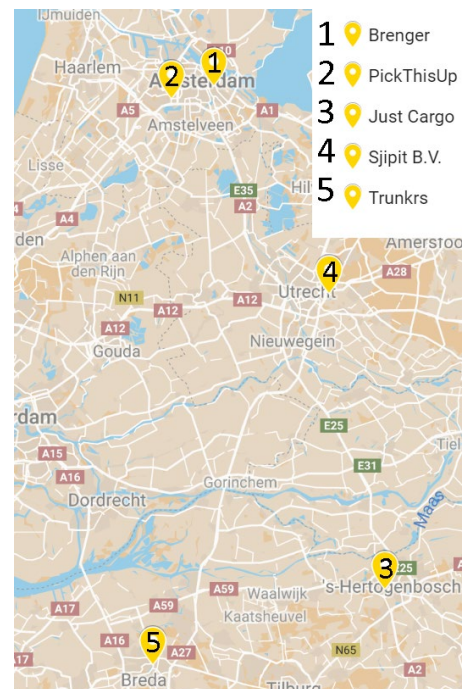
Figure 9: A map showing the location of the Dutch platforms

Trade Associations:

Dutch transportation movements are traditionally executed by transportation and courier organisations. These organisations vary in size from 1-person businesses to the biggest players with hundreds of vehicles in their possession. Trade associations represent these companies, take up the need for lobbying, spread knowledge, and forge relations (TLN, 2016). General marketing, publishing, and political donations can also be part of the activities

of trade associations. With recent developments concerning sustainable development and concerns towards emissions, trade associations in the transportation sector (and affiliated sectors like e-commerce) fulfil a vital role for organisations to protect interests but also prepare organisations for coming legislation (Thuiswinkel.org, n.d.).

Figure 10: A map showing the locations of the relevant trade associations

Regulatory Organisations:

The Dutch regulatory environment is complex and multi-faceted. To ensure independent control of rules and regulations, over 20 regulatory organisations have been appointed by the Dutch government. In the transportation sector, the most prominent one is ACM (Authority Consumer and Market). Their main spearheads are fair competition and consumer rights, and their mission statement is to create a level playing field for rule-abiding organisations and to inform consumers of their rights (Autoriteit Consument & Markt, n.d.-a). They operate in several fields, within which Telecommunication, Transportation, and Mail focussed on the Dutch transportation sector.

Local Government:

There are 380 municipalities in the Netherlands. Each has a significant amount of freedom in deciding what kind of rules and regulations they implement, as long as they comply to the standards set by the national and European governments. Different municipalities can take radically different approaches to solving similar problems.

National Government:

The Dutch government consists of several ministries, with the Ministries of Economics & Climate and Infrastructure & Waterways being most involved with developments in the Dutch transportation sector.
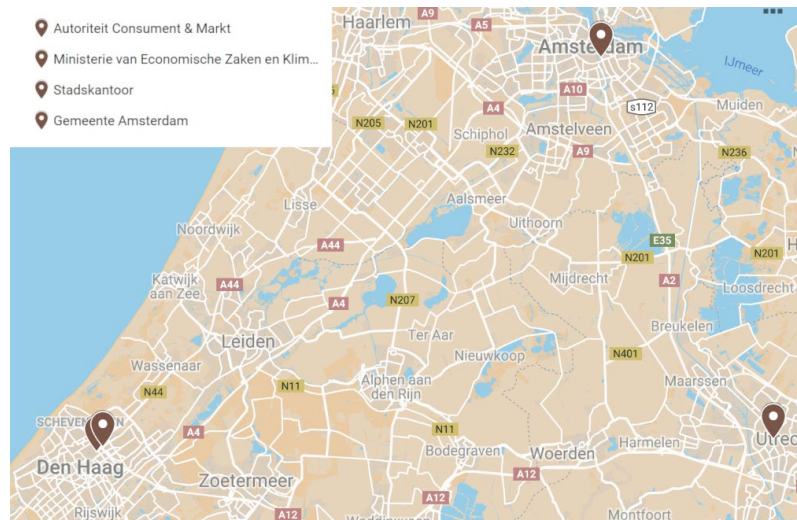
Figure 11: A map showing the different levels of governmental institutes (local, national and regulatory)

What rules, regulations and governance arrangements are in place?

Apart from knowing what kind of actors are active within the Dutch transportation sector, and what their relations are, it is important to research what kind of regulatory framework the development of these peer-to-peer initiatives take place in. This regulatory framework consists not only of laws and policy and rules, but also of networks, shared projects and co-creation between the public and the private sector.

There are barely any regulations specifically applicable to peer-to-peer parcel delivery platforms. ACM expects small organisations to register themselves in the ACM register, even making exceptions for smaller organisations regarding annual fees (Autoriteit Consument & Markt, n.d.-b), but this is, especially when looking at small organisations and initiatives, barely enforceable.

Dutch Tax Authorities are looking for ways to incorporate the sharing economy into the regular taxation system. Their current regulations concerning shared services of cars focuses on the moving of people instead of packages, but package delivery could easily be an addition to their current taxation system. There is a distinction made between transportation that just cover the costs you make and the driving of actual taxi-like routes (Belastingdienst, n.d.):

•   If one transports people just to cover the costs, this does not have to be filed. Some requirements are that it is done in the car that is normally used, the drive would have been made either way, and a cost-covering (non-profit) fee is decided upon before the start.

•   If one performs a taxi service while not in salaried employment, these incomes do need to be filed, either as 'results from other work' or as income from business (only if one is considered an entrepreneur).

The Tax Authorities apply a four-pronged system to see if someone is considered to be an entrepreneur: business continuity, entrepreneurial risk, business size, and independence. Most 'micro-entrepreneurs' will score sufficiently on the first two points, while their limited income and lack of various clients mean that they are not considered entrepreneurs. This means that no taxes need to be filed.

Topsector Logistics

The Dutch Topsectors were created in 2010. Their main goal is a sustainable economic growth in the most important sectors of the Dutch economy; and to make sure these sectors remain competitive in the international market (Topsector, 2018b). By combining the knowledge of the government, industries, and the knowledge sector (also known as the triple helix, based on Etzkowitz & Leydesdorff (2000), see Figure 12), the Topsectors hope to find sustainable answers to problems concerning issues such as climate change and the aging of the general population.

According to the Dutch government, nine sectors of Dutch society have leading roles in the global market: High Tech Systems and Materials, Horticulture and Starting Materials, Chemicals, Creative Industry, Life Sciences & Health, Energy, Agri & Food, Water, and Logistics.
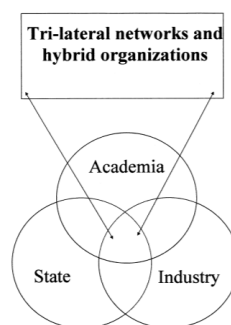
Figure 12: A visualisation of the Triple Helix from Etzkowitz & Leydesdorff (2000)

The Dutch logistics sector has a lot of economical value, with around 646,000 jobs and an added value of around 53 billion Euros annually. To raise the competition position of the Dutch logistical sector, the following ambitions have been recorded: "In 2020, the Netherlands will have an internationally leading position (1) in the settlement of product flows, (2) as a chain director of

(inter)national logistical activities and (3) as a country with attractive innovative- and settling climate for shipping and logistical companies." (Topsector, 2018b)

Connekt, a networking company situated in Delft, is responsible for the secretariat of the Topsector Logistiek [interview 6: quotation 27 in Appendix 5]. The main goal of Connekt is to connect people and parties and in that way quicken the innovation- and sustainability ambitions of the Dutch transportation sector [6:4]. They see three main controls that society can play with to become more sustainable: Technology (e.g. investing in electric or hydrogen vehicles), Behaviour (e.g. raising public awareness on the impact of same day delivery), and Regulation (e.g. prohibiting certain vehicles to enter city centres) [6:12].

Green Deal Zero Emission City Logistics

There has been a rising demand for society to become more green and sustainable. Reducing emissions and investing in clean, green energy are among the tools the Dutch government can use to lessen their impact on the earth, and to come closer to the goals of agreements such as the Paris accords. However, the government does not operate alone—it needs the expertise and creativity of other important actors within society including citizens, organisations, and non-governmental organisations. This realization led to the Green Deal approach in 2011. Green Deals rely heavily on interaction between the different parties in society to incubate innovative, sustainable initiatives (Topsector, 2018a). One of the roles the government assumes is the flexible regulator—looking at the regulatory bottlenecks in various sustainable innovations, and sometimes easing regulatory burdens by loosening the rules. Green Deals have a variety of goals in several sectors, but it should be noted that Green Deals are cooperation based and do not have binding end results. Currently, there are over 200 Green Deals signed and active in the Netherlands.
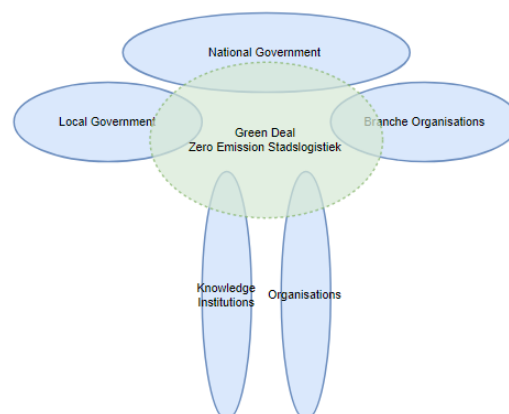

Figure 13: A visualisation on the different types of actors involved in the Green Deal ZES (created by author)

In 2014, the Green Deal Zero Emissie Stadslogistiek (ZES, Zero Emission City Logistics) was signed by 54 parties, including 14 municipalities as well as transportation companies, trade associations, and research institutes (for a full list of actors see Appendix 2, for a visualization see Figure 14). The municipalities of Amsterdam and Utrecht, the ministries of Economics & Climate and Infrastructure & Waterways, the HvA (University of Applied Sciences), and trade association TLN are among the parties that signed the deal, and the Topsector Logistiek is also involved in developing innovations that can turn into an export product. The goal of the Green Deal is to reduce the CO_2, NO_x, and particulate matter emissions caused by city logistics to zero (or as close to zero as possible). Different methods and innovations are being tested through living labs in many municipalities. (Topsector, 2018a). Various bottlenecks and opportunities in both the regulatory and regular environment are being recorded, and feasible practices will be scaled up nationwide. The four areas where innovations can take place are:

- Organisation - the bundling of material streams, new logistical concepts
- Regulation - parking policy, loading and unloading times, custom solutions
- Technology - less polluting vehicles designed for the city
- Behaviour – discouraging expectations of immediate delivery, raising awareness

(Topsector, 2018a)

An overview of the peer-to-peer parcel delivery sector in the Netherlands

The actors, arrangements, and rules described above can be divided into several fields: the Platform actors, the Government actors, the Sector actors, and the Knowledge actors. The way these actors interact with each other in the Dutch environment is visualized in Figure 14.
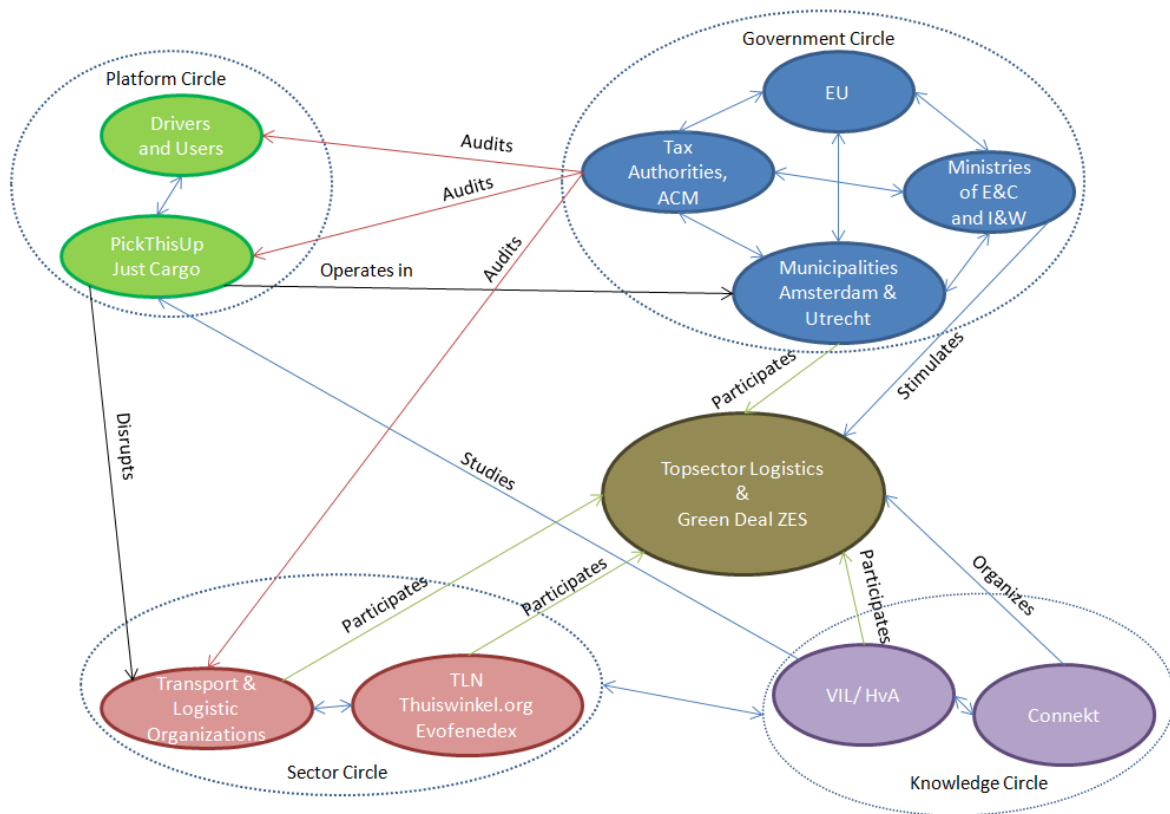
Figure 14: A visualisation of the different types of actors involved in the Dutch transportation sector (made by author)

As seen here, there are no partnerships or informal relations between platform actors and other actors. Interestingly, the Green Deal plays a central role in bringing together the other actors. However, it should be noted that the Green Deal isn't one gathering of actors, but rather locally organized talks and measures in separate municipalities. In the next chapter, the results of the interviews will be presented, and an analysis of this data is made.

In this chapter, it becomes clear several actors in different circles are active. First off, the government circle contains actors like the EU, who is left out of this research, and mainly focuses on the creation of research rapports concerning platforms and the sharing economy. National government actors include the ministry of I&W and E&C, who take a stimulating position towards innovation in the transportation sector as opposed to preventive regulative. Local municipalities are actively involved, as among others transportation issues within city centres are a growing problem. Regulatory institutes like the ACM and the Tax Authorities make sure existing regulation is being followed, by both organisations and citizens alike.

The transportation sector circle includes Trade Associations and the organizations they represent. The trade associations function as lobbying, researching, and knowledge sharing umbrella identities that keep their constituents up to date concerning rules, regulations and developments in their field.

Inside the knowledge circle, knowledge institutes like universities operate next to think tanks specialised in the transportation industry. The broader field of universities not only focuses on the transportation sector, but also takes into account developments in the sharing economy and the rise of platforms.

In the platform circle, two kinds of actors are active, the platforms and the crowds using the platforms. The platforms connect the producing and consuming crowd. As can be seen in figure 14, no interactive relations consist between platforms and the other actors described above, while the other actors are connected through governance arrangements, which will be summarized below.

There are two main governance arrangements active within the transportation sector. The Topsector Logistics was initiated by the national government to focus on stimulating sustainable development in the transportation sector. This is done by combining the knowledge of the State (the governmental actors), the Industry (the transport organizations and their trade associations) and Academia (e.g. universities and think-tanks). The Topsector Logistics has several subjects that it focuses on, and within these subjects, research and tests are done.

The other governance arrangement is the Greendeal ZES. The same three kinds of actors (state, industry and academia) are participating in the Greendeal as in the Topsector. However, the Greendeal is less centralised. The actors involved revolve around the goal of making participating municipalities emission free in 2025. To achieve this, research is done and test cases are implemented in cities. If these cases turn out to be a success, the knowledge is shared with other actors in the field..

Chapter 5: Results of the Interviews

In this chapter the data gathered from the interviews is presented. Full transcripts of the interviews can be found in Appendix 4, while the list of quotations referred to in the results can be found in Appendix 5. In this section, references will be made to quotations from the interviews. These are structured as follows: [1:2] means interview 1, quotation 2. After the results, an analysis is made, combining the data from the interviews with the data gathered earlier in the literature review. In this part, the results will also be considered to see what the gathered data means to sustainability as a public value, and what measures protect or otherwise engage with it.

Platforms
The socio-economic sustainability factors of platforms

Both platforms that agreed to be interviewed perceive social-economic benefits for their users [2:1, 2:19, 4:26, 4:27, 4:29]. In both driver groups, the biggest part consists of people covered by the Disability Law (WAO), are unemployed (WW) or are seniors/part-timers [2:4, 2:20, 2:11, 4:27] and the added value they can bring to companies and citizens among others by completing these assignments is considered a social benefit. It also prompts them to go out into society and have (no matter how brief) contact with strangers. The possibility of being called upon and doing meaningful work is also considered as a social benefit of the platforms [4:27].

Economically, the driver can receive a helpful monthly addition to their income by driving only a few hours each week for the platform. PickThisUp sees a growing group of drivers (especially people with limited chances on the job market) who make trips for the platform to pad their monthly income [2:5]. Unlike PickThisUp, Just Cargo is not bound by the €6.000 income boundary for drivers set by the Tax Authorities, as they work with an excessive mileage allowance instead. The excessive mileage allowance grants the driver an allowance of €0.27 per driven kilometre, of which €0.19 is tax free. The other €0.08 are taxed normally. This construction ensures that the drivers do not have to file the taxes on this income themselves, and that enough tax is paid on the amount [4:29].

For both platforms, people interested in driving for them can apply on their website. Aside from supplying basic information, the drivers at Just Cargo are also required to deliver a Certificate of Good Conduct (a VOG-verklaring) in order to work for the platform [4:6]. Additionally, the car also needs to be maintained to certain standards [4:32]. This does not mean that the drivers are employees of the platform after supplying this information, they are considered pseudo-employees, meaning that the platform pays pay roll tax and health insurance premiums for them, but no other

costs such as pensions and social costs, and the drivers are considered to be independent workers [4:29].

The role of environmental sustainability in platforms

Both platforms initially followed the original peer-to-peer parcel delivery system, aiming at drivers logging their rides beforehand, so users who needed something delivered could approach the drivers. For reasons explained below, this system was eventually replaced for a system in which users post the products they need to have delivered. PickThisUp noticed that users just did not log their rides beforehand, and after two years of trying to enforce this, they decided to let it go and focus more on the posting of parcels than on the pre-logged rides [2:3, 2:19]. The team mentioned that they would be happy if the user base could grow enough that their original idea would become possible again, but they do not expect it to happen in the near future [2:17].

For Just Cargo, the issues came from the user base. Since Just Cargo focuses on deliveries to and from businesses, these businesses had reservations about the possible unpredictability of available movements, and thus the possibility of their documents not being delivered in a timely fashion. To combat this, the platform moved away from the dependence on logging rides before they occurred, and re-centred on logging packages that needed to be delivered. This delivery-focussed approach facilitated the movement towards a platform that prompts people to drive specifically for one (or, if they are on the same route) multiple packages, instead of the journey that was already being made [4:3, 4:4]. As the sustainable dimension of the original idea vanished, Just Cargo decided to fulfil their sustainability claim by teaming up with Trees For All, who plant an amount of trees for Just Cargo that negates the average emissions of the Just Cargo drivers [4:13, 4:14].

Relations with other actors

The platforms have very few partnerships or direct relations with other actors in the transportation sector [2:10, 4:36]. PickThisUp did try to work together with a number of partners—for example with other platforms like Snappcar and Peerby, and with other parcel delivery platforms, but these negotiations were unsuccessful. The situation of Just Cargo is similar, although entities like TNT Express have shown interest in delegating orders that would fall out of their scope to Just Cargo [4:12, 4:17], and certain companies do think the perceived added benefits (organisational and/or societal) of these kind of initiatives can have a positive impact, and depend on Just Cargo to complete deliveries through the platform [4:12].

Rules, regulations and governance arrangements

The platforms both indicated that they are not registered at ACM, and for PickThisUp the only other regulation they deal with directly is the earning cap set by the tax authorities for freelance drivers [2:6, 2:7, 2:15, 4:18]. Because of the way Just Cargo has set up their payment system, they do pay taxes over the money the drivers earn. Both platforms denied being involved in the Green Deal ZES or any other governance arrangements.

Challenges

When asked about their biggest perceived challenges, the platforms gave very different answers (though their answers share the theme of digitization). For Pick This Up, the biggest challenge seems to be the inclusion of a third crowd [2:8, 2:9]. Platforms like Airbnb, Uber, and Peerby have two kinds of crowds: the user and the facilitator are the only ones trying to set the parameters for a transaction to work. However, with parcel delivery, there are three parties involved: the sender, the driver, and the receiver. Most of the time, Pick This Up points out, only the receiver and the driver are present on the platform, creating an unusual indirect contact between the driver and the sender, through the receiver. This also results in relatively intensive customer support from the platform itself, which is costly in both time and money.

The biggest challenge Just Cargo perceives is unifying (or at least facilitating cooperation within) the transportation sector. An issue they are concerned with is the fractured nature of the courier/transportation business—to them, the way forward is bundling material streams. However, in the eyes of the involved parties this means that at least one actor will most likely lose business, and as the market dictates, no one wants to be the party that misses out on revenue [4:20, 4:21].

Trade Associations

Trade Associations and environmental sustainability

As sustainability and sustainable logistics is a growing topic in the Dutch transportation sector, both TLN and Thuiswinkel.org are engaged in the pursuit of sustainable development. Because the public is also becoming more and more interested in sustainability, the urgency for the member organisations of these trade associations to make it clear that they are invested in sustainable solutions is pressing [8:18]. However, both Thuiswinkel.org and TLN see that their member organisations are concerned with this issue not only because of environmental reasons, but also because it makes financial sense, especially in the long run. An interesting development is that competitors are actually working together on environmental issues, something they have refused to do on practically every other issue [8:11].

Thuiswinkel.org differentiates between two important areas when it comes to sustainability: logistics and packaging [8:1]. Logistics concerns itself with the way packages are transported from point A to point B, what the greenest way is, and what factors impact the emissions per package. Thuiswinkel.org recently collaborated with two transportation companies (PostNL and DHL) and the four biggest e-commerce parties in the Netherlands (Bol.com, Wehkamp, Otto, and Coolblue) to create a method that calculates the expected emissions per package [8:2]. The method uses 15 variables to predict emissions and shows clear changes if a variable changes [8:2, 8:3]. 'Slow' delivery has lower emissions in comparison to same-day delivery as there can be more planning and more efficient packing and delivery when there is more time available. Packaging is an important issue to take into account because most vans don't actually hit their weight capacity before they hit their volume capacity. Smarter packaging would mean more efficient shipping and thus an increase in profit with a decrease in emissions [8:3, 8:19].

TLN thinks it is a vital next step that the Dutch government release a clear framework for sustainable development in the transportation sector. Providing clarity on the course that cities and provinces are taking in the next 10 years will provide transportation companies with a frame of reference for investments. They would like to see more rewards from the government for companies that already take up front-runner positions in more sustainable transportation [3:14, 3:15, 3:16, 3:19, 3:20]. They see the need for an integral approach to reduce unwanted rebound effects during development [3:15, 3:23]. A trending topic in city logistics is the use of electric vehicles, especially Light Electric Vehicles, but TLN anticipates problems with that if they try to replace trucks with these vehicles, since one truck can contain the volume of up to thirteen delivery vans, meaning that this might reduce emissions, but would dramatically raise congestion problems [3:15]. Bigger trucks will always play a role in the Dutch transportation and supply network, but efforts are being made to bring electrical truck manufacturers to the Netherlands to start supplying these trucks at a competitive rate [3:19].

Both TLN and Thuiswinkel.org see a big role for digitalisation in making the transportation sector more efficient and sustainable. The bundling and streamlining of material- and product streams are especially considered to be issues where much can still be improved.

Relations with other actors

Apart from the previously mentioned transportation companies and e-commerce organisations, both TLN and Thuiswinkel.org deal with Connekt and TNO (the Dutch organisation for Applied Scientific Research). For packaging, Thuiswinkel.org is working together with the Kennisinstituut Duurzaam Verpakken (Knowledge Institute Sustainable Packaging) and Afvalfonds Verpakkingen

(Garbage Fund Packaging). In a more passive manner, there is also continuous observation (and lobbying where needed) of the various ministries and Rijkswaterstaat [8:20]. Both trade associations stay in close contact with the various ministries and municipalities to know what kind of developments are being made concerning logistic policy. Thuiswinkel.org and TLN never had any dealings with peer-to-peer parcel delivery platforms specifically, but both were acquainted with ViaTim, a crowd platform that lets citizens register as a 'drop-off point' for parcels [8:8, 3:6]. Thuiswinkel.org does think that it would be interesting to see what peer-to-peer parcel delivery initiatives could add to their research program 'Shopping Tomorrow', a research program revolving around e-commerce challenges, involving different transportation organisations[8:9, 8:30].

Challenges regarding the transportation sector

The growth of package deliveries is something Thuiswinkel.org sees as one of the most pressing challenges in the future of transportation logistics. Deliveries used to happen in stores and the congestion problems would logically centre around these locations, but there is now an added congestion problem of delivery vans in all areas of the city, since packages are now delivered to residential addresses [8:24]. Bundling material streams could provide relief to urban areas and reduce emissions. This bundling is also one of the biggest challenges in the field according to TLN. To find the most efficient and sustainable way of transportation requires planning and possible cross-boundary interaction between companies that is currently unworkable [3:26, 3:17, 3:18].

Perception of peer-to-peer parcel delivery initiatives

Both trade associations expect the peer-to-peer parcel delivery sector to grow considerably over the coming years. Thuiswinkel.org sees a potential role for these kinds of initiatives in society, especially to facilitate purchases in the second hand market [8:21], and the possibility of a multi-functional ultra-fine network that could be used for everything from traditional parcel delivery to picking up groceries and returning library books for neighbours [8:23].

However, both trade associations can also see potential downsides of the growth of these initiatives. Thuiswinkel.org imagines that growth can lead to a severe increase in congestion, especially in city centres [8:24]. TLN is more concerned about the possible erosion of values such as terms of employment, sustainability, and quality guarantees [3:25].

Local Government

<u>Local government and environmental sustainability</u>

Utrecht was the first to declare a large part of the city centre an environmental zone, banning diesel cars from before 2001 [5:17]. This method of policy implementation, forcing behavioural change in relatively big steps, is not uncharacteristic for the municipality of Utrecht. The municipality likes to challenge itself to maintain a front-runner position, and is also willing to apply stricter regulations than necessary from a national and/or international level. For instance, Utrecht also set a goal to be carbon neutral by 2030 [5:17], as opposed to the national goal of 2050.

Within Amsterdam, sustainability is a growing topic as well. Since restructuring in 2014, the municipality has created the four divisions of Management, Social, Space & Economy, and Service & Information. These divisions contain multiple RVE's (Resultaatverantwoordelijke Eenheden, or 'result responsible units'), each with their own focus. Within Space & Economy, the RVE Ruimte en Duurzaamheid (Planning and Sustainability) is focussed on sustainable visions in Amsterdam. They operate on multiple levels from street to city-wide and on projects to enhance sustainability within the organisation itself. The RVE is growing quickly, and has a lot of influence in the way both internal and external projects are being conducted. Externally, they look at issues like investing in smart building logistics and sustainable materials. Internally, the processes and products within the municipality are analysed and evaluated on how they can become more sustainable [7:25].

<u>Relations with other actors</u>

Important relations of the municipalities are the G4 (Amsterdam, Rotterdam, Den Haag and Utrecht) and G30, the 4 and 30 biggest municipalities of the Netherlands, respectively. Apart from these groups based on size, there is a different group focussed on the green front-runners among the Dutch municipalities, other members including TNO, Den Haag, Rotterdam, Groningen, Tilburg and Haarlem. Within all of these groups, experience and knowledge sharing are main activities. Additionally, the municipalities deals with the ministry of Infrastructure and Water Management, and the organisations and citizen associations within its own borders [5:14]. The municipality of Amsterdam is also is a member of the Kenniskring Goederenvervoer (Knowledge Circle Transportation of Goods), together with the HvA (university of applied sciences) and the UvA (university of Amsterdam) [7:10, 7:11, 7:12]. Both municipalities have no direct contact with peer-to-peer parcel delivery initiatives.

Challenges regarding the transportation sector

Partly due to the growth of the e-commerce sector, approximately 3700 delivery vans move through the city centre of Utrecht every day to deliver packages to residential addresses [5:8]. Behavioural change, for both residents and organisations, is considered one of the most important and pressing challenges for the municipality [5:19, 5:20]. With organisations, it is important that they consider their entire structure, from ordering and delivery systems to implementing sustainability into their core business. With bigger organisations, especially the ones that operate on a national level, such as DHL, Utrecht already sees a clear movement towards more sustainable business practices. It is with the smaller business owners that a lot of improvement can still be made [5:8, 5:10, 5:15]. Utrecht believes that 95% of human behaviour is standard patterns and only 5% is easily changed. By forcing big change, patterns will adjust [5:2]. This philosophy guides the way Utrecht tries to make the city more sustainable. Knowledge sharing is seen as an important tool to enforce behavioural change. Utrecht tries to show that moving towards a more sustainable business model also makes sense economically, and they go out of their way to approach businesses to see if there are questions or a need for education on these subjects [5:20, 5:21].

The challenges Amsterdam faces are slightly different, with the city centre being a bigger tourist attraction and containing not only more than twice the amount of residents as Utrecht, but also a big daily in- and outflow of tourists. Congestion, especially in the historic centre, is a challenge for the municipality, reducing air quality but also damaging the . To battle this, Amsterdam also adopted an environmental zone within the centre, banning diesels from before 2001 (these rules are planned to be strengthened by 2022) and banning heavy-weight trucks from the historic centre except for a few important transportation veins [7:4].

Transport over water is another possible solution that might help relieve the stress on the city [7:2]. Policy is not adequately investigating the possibility of the transportation of goods and materials over water (as currently most movements over water are touring boats), but the benefits are becoming clearer and the possibilities are being researched [7:2, 7;21, 7:16].

Amsterdam also prides itself on its facilitating attitude—aiming to explore what local businesses and entrepreneurs need and assisting them whenever possible. This is also reflected in their stance on innovations in the city centre, where Amsterdam takes a more 'wait and see' attitude in comparison to Utrecht. Take, bike-sharing for example, where several bike-sharing initiatives started to implement free floating bike fleets in the centre without being obstructed by the municipality. After a while, this got out of hand and the fleets started to clog sidewalks. After this, Amsterdam drafted policy to curb these developments [7:26].

Perception of peer-to-peer parcel delivery initiatives

In relation to peer-to-peer parcel delivery, both municipalities are not yet preparing any specific policy. Amsterdam believes that it is the role of the municipality to set the frame and borders for platforms to operate in, enforcing harder policies once clear problems arise. Utrecht also does not believe in restricting, but steers towards more behavioural awareness and change, providing knowledge and policy where needed.

Regulatory Organisations

Regulatory organisations and innovative platforms

Authoriteit Consument en Markt (ACM) concerns itself with looking at specific situations of organisations and innovations, weighing the different variables against each other [1:2]. ACM does not just blindly enforce existing regulations, but also looks at what is the most valuable for the consumer [1:4]. New initiatives like Uber also raise questions about current rules and regulations: what is necessary and what is redundant? ACM works closely with other regulatory agencies, all focussing on different rules and regulations. ACM admits that this isn't always as efficient or effortless as hoped, but it is almost impossible to do it differently in a society and organisational environment as complex as the Dutch one [1:10, 1:23]. Other parties they work with are the AMF (the Authority on Financial Markets), the Dutch Bank, and several ministries and market parties. If ACM sees trends in society that are politically relevant, they believe it is an important function of theirs to provide feedback to the relevant political institutions.

Perception of peer-to-peer parcel delivery initiatives

The platform economy is still an emerging topic for regulating and institutions, and many regulations are not yet fully applicable to platform initiatives, so ACM can foresee discussions and appeals in the future. However, the ministry of Economics & Climate published a paper in 2015 regarding the platform economy, explaining how to deal with them and how to regulate them, for now. One of the conclusions is that existing rules and regulations should still be applied in the digital environment, and that regulators should not be afraid to follow these rules and to set precedents for the future. Modifications can always be made later [1:1](Eijk *et al.*, 2015). However, it is worth repeating that ACM also has the power to make exceptions and allow the loose interpretation of rules, if they deem them not to be in the best interest of the consumer, and because the total number of peer-to-peer parcel delivery initiatives is still very small, some leniency is not out of the question [1:25].

<u>Registration obligation of peer-to-peer parcel delivery initiatives:</u>

Both interviewed platforms indicated that they were not registered at the ACM registry. Reviewing the ACM registry online showed that none of the Dutch peer-to-peer parcel delivery platforms are registered. This could be related to the way platforms define themselves (often as innovative platforms instead of transportation organisations), or it could be that the rules and regulations are currently too unclear for the platforms.

Green Deal ZES

Within the municipalities of Amsterdam and Utrecht, the Green Deals play an important role in policy and practice. Both municipalities have analysed the possibilities of what the municipalities themselves can do to reduce emissions, but also how effective agreements can be made with actors within their borders.

Utrecht has given clear examples of the options that seem feasible: one of them is adjusting the loading and unloading times in pedestrian areas **(**Figure 15), favouring green vehicles over polluting vehicles over time, making it favourable for business owners to invest in green vehicles and thus phasing out the more polluting ones over time. Another measure could be increasing the size of pedestrian areas, and creating flexible loading and unloading zones that need to be reserved ahead of time by transportation vehicles.

LEGENDA:
Blauw: *venstertijden voor iedereen die voldoet aan de milieuzone-eisen.*
Groen: *venstertijden alleen voor voertuigen die voldoen aan eisen schone distributie. Dit venster schoon kan alleen worden benut tot 2025 voor vracht vanaf Euro VI en voor bestel <3,5 ton elektrisch of biogas. Vanaf 2025 moeten zowel vracht als bestel zero emission (elektrisch of andere techniek zonder lokale uitstoot) zijn.*
Grijs: *gebied gesloten voor alle bevoorradingsverkeer, uitgezonderd zeer specifieke ontheffingen.*
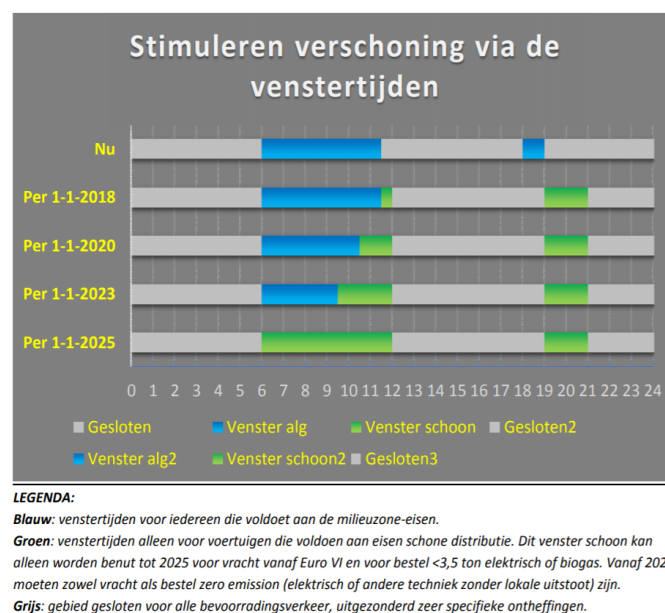
Figure 15: The scheduled changes of the loading and unloading zones in Utrecht. As can be seen, over the years the times for 'clean' vehicles are becoming broader, while the times for the more polluting vehicles shrink each year.

The municipality is looking into how techniques like geo-fencing could help them accomplish this. Apart from loading and unloading in cities and banning older vehicles, zero-emission hubs are an idea that is taking hold in Utrecht and many other ZES municipalities [5:4, 5:5, 5:6, 5:7]. The idea is to create goods collection hubs at the edge of cities, where goods will be collected, sorted, and subsequently handed over to and delivered by Light Electric Vehicles. Although both Utrecht and Amsterdam mentioned the use of cargo hubs (and they are both intending to expand this) [5:6, 7:5], and TLN also sees the benefits of it, the argument of raised congestion caused by smaller delivery vehicles mentioned earlier should be taken into account[3:15]. This correlates with the trend Amsterdam is noticing, wherein Light Electric Vehicles are already starting to obstruct the bicycle lanes in the city, and they have to find a fitting policy response [7:14, 7:15]. As mentioned above, Amsterdam is also looking more into movements through the waterways. An early example is the package boat from DHL, that carries packages through the canals, where bike messengers meet the boat at specific points to deliver them to the final address [7:16].

The trade associations and companies that signed the Green Deal are also invested in finding new and innovative ways of reducing emissions such as the package boat from DHL and cargo bikes, and some companies are also starting to invest in electric vans. However, TLN indicated that to stimulate companies even further to invest in electric vehicles, it is up to municipalities to create a clear framework and future path [3:16, 3:19]. The changing loading and unloading times are a start, but more clarity in policy will give the companies more stimulation to invest in clean technology. TLN would also like to see more benefits for front-runners, for companies leading the way in the move towards more sustainable delivery [3:20]

After the interviews, it is possible to take a look at how peer-to-peer parcel delivery initiatives incorporate sustainability in reality. Both platforms deviated from the original form of peer-to-peer parcel delivery where rides get logged beforehand, towards a system that only logs parcels that need to be delivered due to pressure from the crowds. Although sustainability has been indicated to be an important value for these platforms, the current role of sustainability is more in the background. Organisational decisions had to be made to keep the platforms operational and viable, and the sustainability values the platforms kept as core values endangered these. Just Cargo still tries to incorporate sustainability within the platform by compensating for their average emission, but more as a bonus than as a core value.

The chances and risks of peer-to-peer parcel delivery initiatives are also discussed in this chapter. The platform economy is still an emerging topic for governance arrangements and institutions, and many regulations and arrangements are not yet fully applicable to platform initiatives. In relation to peer-to-peer parcel delivery, none of the governmental actors are preparing any specific policy currently as the peer-to-peer parcel delivery market is still small, and instead choose to focus more on the stimulation of innovation through the Green Deal ZES and the Top Sector Logistiek. However, all involved parties expect the peer-to-peer parcel delivery sector to grow. Possible benefits of these peer-to-peer initiatives are to stimulate purchases in the second hand market, the decrease of emissions, financial independence of drivers, and the possibility of a multi-functional ultra-fine network that could be used for more than just package delivery. However, involved actors can also see potential downsides of the growth of these peer-to-peer initiatives. Growth can lead to a severe increase in congestion, especially in city centres, and there is also concern over the possible erosion of values such as terms of employment, sustainability, and quality guarantees.

Although it was already clear that the Top Sector and the Green Deal were active in the transportation sector, it becomes clear that there are no governance arrangements are currently active specifically in the field of peer-to-peer parcel delivery specifically. However, an influential arrangement in the field of logistics and transportation is the Green Deal Zero Emission Stadslogistiek. The main goal of this Green Deal is to create emission free loading and unloading in city centres by 2025. Promoting sustainable development is the main goal of this Green Deal, while also dealing with issues such as air quality and congestion. Currently, participating actors are governmental organizations, trade associations, transportation organizations, and knowledge institutes. Peer-to-peer parcel delivery initiatives are currently not involved in this Green Deal, but have the possibilities either helping or delaying the development towards an emission free city centre.

Chapter 6: Analysis of Interviews and Literature

There seems to be a consensus between different actors in the Dutch transportation sector that peer-to-peer parcel delivery services will grow considerably in the coming years [4:30, 3:7, 3:27, 5:24, 7:26, 8:21, 2:16]. PickThisUp has a vision of an Airbnb-like situation where only one giant platform will remain, controlling the biggest part of the peer-to-peer parcel delivery market [2:16], which is not an unthinkable scenario when looking at platform giants such as Airbnb and Uber, and big peer-to-peer delivery initiatives such as Postmates in the USA. Frenken *et al*. (2015) also warn for this scenario, saying "the risk of a monopoly is a real one. Regulations are required to ensure sufficient competition between platforms". Only Connekt seems to doubt if this growth will be the case [6:23], and thinks the question of whether these kinds of initiatives are a desirable development within Dutch society should be further researched. They do not doubt that peer-to-peer parcel delivery initiatives in their current form can have positive socio-economic effects on people in lower economic classes, as €6.000 on a yearly basis is an additional €500 a month, but the question is raised of whether a movement towards a more 'American' norm, where people need multiple jobs to make a decent living is desirable, especially since the risk exists that these jobs will miss benefits such as good terms of employment, pension build-up, and insurance [6:26]. TLN urges the same caution when looking at the future of peer-to-peer parcel delivery, stating that public values like quality, safety, sustainability, and terms of employment should be carefully safeguarded against erosion through unchecked development of these kinds of initiatives [3:25]. This fear resonates with the arguments of Codagnone *et al*. (2016) and the articles of Weber & Silverman and Singer (2018; 2015). A cause for caution are the payment systems of the two platforms interviewed, neither of which pay for the pensions and insurances of their drivers [4:29, 2:6].

The Elkington Dimensions of Sustainability and peer-to-peer parcel delivery initiatives

Combining the research done by the VIL (Merckx *et al*., 2017) and the data retrieved from the interviews, the current state of peer-to-peer parcel delivery initiatives in the Netherlands can be assessed by the triple bottom line of Elkington (1998).

First, the environmental aspect is discussed. Interestingly enough, both platforms started with environmentally focussed core values, wanting to reduce emissions by making use of vehicular movements that were already being made. However, they soon realized that these values obstructed the day-to-day operations of the platforms, which manifested itself in pressure from the user- and client bases to focus on more profitable, reliable ways of business. Thus, both platforms

traded off the environmental aspects for social- and economic aspects. This paved the way for an operational process based on people driving specifically for packages instead of dropping off packages on the way to a destination. As Merckx et al. (2017) showed in their report, this is considerably less sustainable than the use of the business-as-usual transport. The interviews show that issues like congestion and poor air quality are dominant issues in the logistical sector, and although peer-to-peer parcel delivery initiatives hold the potential of making a positive contribution, the small amount of initiatives that are active are currently adding to these issues. However, if the parameters of peer-to-peer parcel delivery can be guided by shortening routes, driving multiple packages, or ensuring the route already had to be driven, peer-to-peer parcel delivery can make a positive impact. Every interviewed actor sees an important role for digitalisation in the near future [1:33, 2:21, 3:18, 4:20, 5:5, 5:12, 6:25, 7:22, 8:23], mostly as a tool to ensure more efficient bundling of package streams to and from cargo hubs. If this bundling can also take place in the peer-to-peer sector, not only would this be more environmentally- and economically sustainable, it would also reduce pressure on city centres by reducing congestion—an issue that came back repeatedly in both literature research and interviews. As both interviewed platforms started with environmentally sustainable core values, but had to give priority to economic values, issues can also be found not just with the platforms, but also with the crowds using the services. PickThisUp converted from a ride logging platform to a package logging platform when realizing that their drivers were not going to log their rides in advance. Just Cargo had to make the same conversion after customers indicated that the potential unpredictability of deliveries were unacceptable for them. These conversions show two problems, the first one being that it is now financially attractive for drivers to make a trip specifically for one parcel. It also points toward a paradigm in which currently financial gains are valued over environmental impacts, by both the drivers and users. The data consistently points to a currently unsustainable environmental impact by peer-to-peer parcel delivery initiatives on society. Too few users of the platforms are transporting multiple packages at once or dropping packages off on their way to their destination.

Socially, there seems to be no indication that peer-to-peer parcel delivery initiatives are not fulfilling their promises to benefit their user base. The very fact that the platforms are growing and thriving implies at the very least a functional environment and in the best case an opportunity for people to thrive off of social interactions and a sense of purpose. Actors like TLN and Connekt do see potential issues concerning the degradation of labour contracts, which can impact social sustainability negatively when the general terms of employment degrade. This gets supported by claims from Codagnone (2016) and examples from other countries such as the United States (Weber & Silverman, 2018). These problems might not currently be problematic for Dutch society, but as the

sharing economy grows, problems can arise as soon as people start depending on various sharing economy 'jobs', where social benefits such as pension are not included. These issues are already emerging in Dutch society in relation to the rise of Zzp'ers and the lack of pension building. It should be noted that no direct data from either crowd is obtained for this research, and it is recommended that future research looks at the social impact of peer-to-peer parcel delivery.

Although academic research advices caution when looking at the economic impact of peer-to-peer platforms (Codagnone et al., 2016) and examples in the USA create a wary image, it should be noted that currently, Dutch users mainly seem to be participating in the peer-to-peer parcel delivery next to a more regular income. This way, it can be seen as a monthly extra on top of a steady income, without the potential problems like lack of insurance and non-existent benefits that are encountered by full-time participants in the peer-to-peer economy. However, the growth of the sharing economy and the gig economy in the Netherlands can be the precursor of a changing economic system, and extended research in how financial safety nets can or need to respond to that is recommended.

In conclusion, within the Elkington framework from 1998, the Dutch peer-to-peer parcel delivery initiatives can currently be considered viable (economically and socially sufficiently sustainable), but not truly sustainable, as the environmental impacts are not sustainable.

What governance arrangements are currently in place for peer-to-peer parcel delivery initiatives and how effective are these in safeguarding sustainability?

The tables below summarize the information found in the literature study and the data gathered during the interviews with different actors active in the Dutch transportation sector concerning the active governance arrangements that are active. Table 3 focuses solely on arrangements specifically targeting peer-to-peer parcel delivery. Very few arrangements turn out to concern themselves with peer-to-peer parcel delivery initiatives, with only governmental regulations asking to supply basic information and initiating a cap on the amount of money a citizen can make tax free through these platforms.

However, although the peer-to-peer parcel delivery initiatives are small, the interviews proved that sustainable development is a very relevant topic within the sector, and a lot is happening in the Dutch transportation sector that has a degree of overlap with peer-to-peer parcel delivery initiatives and sustainable development. In Table 4, the more general developments of the transportation sector are included.

	Hierarchy	Market	Network
Economic Instruments	A cap on the amount of money made through peer-to-peer platforms (regulatory level)	x	X
Communicative Instruments	X	X	X
Legal Instruments	Registration of peer-to-peer parcel delivery platforms (regulatory level)	X	X

Table 4: Bevir's table applied specifically to the subject of peer-to-peer parcel delivery

	Hierarchy	Market	Network
Economic Instruments	A cap on the amount of money made through peer-to-peer platforms (regulatory level)	Investing in cleaner, more innovative ways to deliver packages	Alternatives to traditional transport being researched through Topsector / Green Deal ZES
Communicative Instruments	Information spreading for behaviour change (municipal level)	Spreading awareness about different emissions for different delivery times/ways	Different parties (triple helix) discussing goals and means
Legal Instruments	Registration of peer-to-peer parcel delivery platforms (regulatory level)	x	Codifying the Topsector goals and results from the Green Deal ZES

Table 5: Bevir's table applied to more general developments in the Dutch transportation sector

When investigating table 3, the first thing that is noticeable, is the lack of general governance arrangements concerning peer-to-peer parcel delivery initiatives. The second thing is the spread of the measures that are in place. The two measures that are active both reside in the hierarchy column (the obligatory registration and the cap set on the amount of money earned tax free). The fact that there is nothing in the Network column, while in table 4 that column is filled with Green Deal arrangements, shows more clearly the social vacuum these initiatives operate in. All Hierarchy

dimensions can be assigned to the municipal and regulatory levels of government instead of the national level, confirming the role of the national government, claiming they would focus on stimulation of innovation instead of regulation. This is supported by the Network column, whose dimensions are filled up with the Topsector and Green Deal. The market actors and trade associations are involved in these network dimensions, but are also acting independently of these networks. Several of these organisations are already implementing more sustainable transportation options themselves, or are waiting on clearer information from the relevant government bodies to provide a framework in which they can operate. Looking specifically at measures that safeguard sustainability in regards to peer-to-peer parcel delivery, it shows that there are currently no governance arrangements in place at all. The only arrangements specifically aimed at peer-to-peer parcel delivery initiatives concern the amount of money the drivers make annually and the fact that they are required to register in the ACM registry. Both of these measures can be said to help safeguard sustainability in a second degree measure; the cap made on the amount of money earned ensures that people will not be able to do this in an intensive manner, and thus limits the total amount of rides made. The registration duty (together with the accompanying annual data input) makes it possible for institutions to gain an insight into the size and impact of these initiatives. However, on a direct level, the arrangements concerning peer-to-peer parcel delivery initiatives and sustainability is very limited, from both the government and market sector.

Both the interviewed actors and the studied literature point towards the notion that peer-to-peer parcel delivery initiatives will grow over the coming years. The current environmental impacts of peer-to-peer parcel delivery initiatives can be mainly assigned to the inefficiency of making delivery trips for single packages. This inefficiency leads among others to higher levels of emissions and a rise in congestion, while potentially also adding to broader social and economic risks such as the erosion of labour contracts. The Green Deal ZES aims to reduce the environmental issues within cities. The Green Deal supplies a framework and goal for 2025, while still allowing space for the individual actors to make their own choices and consult with other actors. Although they do add to the progress of sustainable development within the transportation sector, they currently do little to combat the potential environmental risks introduced by the current form of peer-to-peer parcel delivery, as they do not take these initiatives into account. The drivers active on these platforms are not officially transporters and are thus not bound by the same rules as transportation companies. In the previous chapter, it was shown that the interviewed platforms started off with sustainable core values, but were pressured from both the user base as the client base to give less priority to these values, or abandon them completely. These choices had to be made as the platforms are still businesses and need to be economically viable to survive.

The risks with respect to sustainability that accompany peer-to-peer parcel delivery initiatives can be broken down into five clear points:

Summarizing, the interviews and literature on peer-to-peer parcel delivery initiatives, there are a few risks accompanying these initiatives. It becomes clear that the platforms operate in a social and regulatory vacuum, have very little relations with other actors in the field, and although they are officially required to supply information to regulatory agencies, this is difficult to enforce. They also do not have an overarching trade association or representing organ, which sidelines them during negotiations and makes them hard to approach. A second risk is the lack of users on the platforms, making it harder to obtain the mass needed to start bundling deliveries. Third, it is also currently financially attractive for drivers to make a trip specifically for a single delivery. Fourth, the drivers and users are not incentivized to prioritize environmental impacts over financial gains, or are not aware of the environmental impacts this behaviour brings. And finally the broader risk of labour contract degradation and the erosion of social values such as insurance can financially endanger workers who have accidents.

In the next chapter, different possible governance arrangements to counter these issues are discussed. In the next chapter, different possible governance arrangements to counter these issues are discussed.

Chapter 7: Possible Governance Arrangements

In this chapter, possible forms of governance arrangements to help safeguard sustainability will be made based on the issues mentioned in the previous chapter and the table of Bevir. Suggestions will be made per arrangement what party would be best fit to carry them out. These arrangements take into account the three dimensions of sustainability by Elkington, but the focus will be on environmental sustainability as this dimension is the most directly endangered by the current situation. The table is being used as a frame to explore possible arrangements to safeguard sustainability. This chapter does not aim to measure the effectivity or quality of these arrangements, but instead uses Bevirs table as a typology of governance tools, and it will be used to gather insights into the role of peer-to-peer parcel delivery initiatives in the Dutch transportation sector, and ways to safeguard sustainability. The value of using Bevirs table is to widen the range of possible arrangements, and to go beyond only recommendations focused on governmental actions.

The arrangements discussed in this chapter are based on suggestions made in interviews, and on data found in the desk studies. They are possibilities that fall within the framework of Bevir and are currently not being utilized to safeguard sustainability. In the last chapter, five main issues with peer-to-peer parcel delivery initiatives were encountered: they operate in a vacuum, with very little ties to other actors in the field; the platforms currently do not have enough users to live up to their potential; it is currently financially attractive to deliver packages for peer-to-peer parcel delivery initiatives, even if it is only one package; the drivers are either not incentivized to prioritize environmental impacts, or are unaware of the impact of their behaviour; and lastly, there is a possibility that peer-to-peer parcel delivery initiatives way of labour poses a risk to the social and financial safety nets currently provided by the traditional way of working.

Environmental Dimension

With the risks that accompany peer-to-peer parcel delivery initiatives, it could be an idea to make this form of parcel delivery illegal. This can be related to the case of UberPOP, in which citizens would freelance for Uber. This practice was made illegal, while UberX (where the drivers are licensed taxi drivers) is still allowed in the Netherlands. As governmental institutions showed varying reactions from hesitation to direct aversion when the subject came to prohibiting these kinds of initiatives, and other interviewed actors also didn't think this would be the best option [5:25, 1:11, 7:15], more delicate governance options should also be explored. This seems also more logical when looking at the general way Dutch governmental actors operate, regulating to a certain degree, but rarely applying command-and-control type instruments such as prohibition. As the Crowd Logistics

report (Merckx *et al.*, 2017) highlighted, the current environmental impacts of peer-to-peer parcel delivery initiatives are far from favourable, but apart from the risk of growth mentioned above, there also lies opportunity. With a proper regulatory framework, peer-to-peer parcel delivery can actually make a positive impact on emissions of the Dutch transportation sector. In the VIL report and Figure 6 on page 23, it can be seen that packages delivered on an already necessary trip, or the delivery of at least 10 packages in one trip, shows a total external cost of less than the current business-as-usual scenario. Several recommendations are given below. They are ordered by the systems provided by Bevir (2012) and their corresponding dimension.

Hierarchy – Economic: Currently, peer-to-peer parcel deliveries have a cap on earnings. However, additional research can provide information on whether government restructuring of these regulations is needed. The government has the option to put higher excise duties on more polluting delivery options, thus forcing the less sustainable options to also be the most expensive.

Hierarchy – Communicative: As the municipality Utrecht shared, much can still be achieved by making people aware of the consequences of their actions. Actors see an imbalance in the power that consumers have—their power to change the way business is done can be wielded through the way they decide to spend their money and yet they tend to seek the path of least resistance and want comfort for the lowest price [5:2, 8:25,4:15, 2:12]. When communicating with organisations, it is important to clearly and in a timely manner share plans concerning sustainable development-geared policies with business owners and organisations to ensure they can make the most well informed decisions when it comes to investing and planning.

Hierarchy – Legal: On the regulatory level, the registration requirements of peer-to-peer parcel delivery initiatives should be looked at more closely. What would the best way be to ensure that platforms like this know they have to register themselves, even if there are no costs involved? And how can it be ensured this happens? Perhaps an option could be a closer partnership with the Chamber of Commerce, to ensure registration happens right at the start of the company. Having these platforms registered and supplying basic information with regular intervals (e.g. annually) would help knowledge institutes and governmental organisations produce a more accurate idea of the size and impact of the peer-to-peer parcel delivery sector, and could help create fitting but not choking policy for these sorts of innovations. The required data that needs to be submitted annually can also be re-evaluated to see what data would be necessary to promote sustainable development in this area. Think for example of anonymous data concerning the vehicles used and the distances driven, including the average amount of packages.

Market – Economic: given that environmental values were core values at the start of the two considered platforms, it could be an interesting experiment for platforms to change the way compensation for package deliveries are set up. For example, if the compensation for one package only covered part of the fuel costs of the trip, it would only be attractive to deliver a package if the trip was already planned for other reasons. Combining the pick-up and delivery of multiple packages could scale the rewards, making it more beneficial to bundle packages. Instead of an economic reward big enough for drivers to go out for one parcel, a set base kilometre allowance to cover the fuel used for the trip could motivate people already driving to sign up for the platforms, while deterring people who are more extrinsically motivated.

Market – Communicative: Communicating the environmental benefits of peer-to-peer parcel delivery could potentially attract a niche group of companies that would assign initial business deliveries to the platforms. The economic benefits when the platforms grow should be interesting for additional companies and consumers to start using the business once it is more established. By excluding older, dirtier vehicles, the pool of drivers will be smaller, creating more opportunities to bundle deliveries.

Network – Economic: Creating an overarching digital bundling platform that operates so that traditional transportation organisations and peer-to-peer parcel delivery platforms work in a more efficient way concerning the last mile can greatly improve efficiency and reduce emissions. Every interviewed party sees an important role for digitalisation in the near future [1:33, 2:21, 3:18, 4:20, 5:5, 5:12, 6:25, 7:22, 8:23], mostly as a tool to ensure more efficient bundling of package streams to and from cargo hubs. This digitalisation offers the opportunity for peer-to-peer parcel delivery initiatives to also gain more bundling possibilities through joining platforms or offering their services to organisations (like Just Cargo is planning with TNT Express) [4:17]. Government officials involved in the Green Deal program and Topsector Logistiek could be prime candidates to realise this project, with municipalities participating in the Green Deal ZES and implementing cargo hubs being the choice candidates to test these bundling programs on.

Network – Communicative: Accepting the likelihood that peer-to-peer parcel delivery initiatives will not be prohibited, it is important to make sure they are involved in the process of developing the transportation sector in a sustainable way. It would interesting for municipalities that have active peer-to-peer parcel delivery initiatives active within their borders to reach out to them for involvement in the Green Deal. On a national level, an interest group/trade association of sharing economy initiatives (see the economic recommendations) would be an ideal entity to take the representation of these platforms upon itself in the Green Deal process.

Network – Legal: The Green Deal and Topsector have ambitious ideas and goals. To record these goals in formal codes as soon as the initial participants of the Green Deal complied to them and applying them to the organisations that did not sign the Green Deal can have multiple benefits. First, it accelerates the process towards a sustainable transport sector by implementing nationwide goals and regulations. Second, it creates a situation in which it is favourable to be a front runner for sustainable development, as it ensures time to research sustainable solutions, while putting pressure on competitors to change once the new regulations take effect.

Economic Dimension

There are symptoms of more serious economic issues with peer-to-peer initiatives happening abroad in countries like the United States. It is unclear if this is caused by the sharing economy being active longer or more widespread, or by fundamental differences in societal structure between the Netherlands and the USA. The financial security provided by the state for the citizens is constructed differently in the Netherlands, where the system leans more towards a social structure. It should be noted that the negative economic changes in these countries should be taken extremely seriously, and the risk of these changes happening in the Netherlands should be researched and evaluated. Based on this, some recommendations will be made for securing Dutch economic sustainability concerning peer-to-peer parcel delivery.

Hierarchy – Economic: Economic problems concerning peer-to-peer parcel delivery initiatives are mainly focussed on avoiding issues that occurred in different countries where the platform economy is growing quickly. An important issue that repeatedly came back was the erosion of labour contracts and employment benefits. In 'The Future of Work in the Sharing Economy Codagnone *et al*. (2016), propose a system called Benefits Portability, in which individual security accounts are created. Benefits like wage insurance, health insurance, disability, and injury insurance are thus no longer bound to one employer, but are rather packages that move with the flexible worker switch between different 'gigs' or even platforms. The feasibility of this system could be researched by institutions like the WRR.

Market – Economic: A benefit from lowering initial compensations, mentioned in the environmental market recommendations, would be lower costs to send packages, which would attract more customers. An abundance of customers makes bundling packages more likely, attracting more drivers. This would lead to finding the needed balance that was reported to be missing in the current states of the active platforms.

Market – Legal: It would be interesting for platforms in the sharing economy to create a sharing economy interest group/trade association that advocates on behalf of different platforms and could help different sharing economy platforms to live up to their potential. Pursuits of this interest group could include the securing of funding for experiments concerning sustainable development, dissemination of knowledge and being involved in the process of policy making concerning sharing economy platforms.

Social Dimension

Although there seems to be few downsides to the current social environment of peer-to-peer parcel delivery initiatives, there are still social changes that could benefit both peer-to-peer parcel delivery initiatives and Dutch society as a whole. As the Utrecht municipality indicated, behavioural change is a considerable challenge on the path to a more sustainable society.

Market – Communicative Knowledge sharing from market actors towards Dutch citizens about the impacts of different kinds of package delivery could create a higher level of awareness. It would be very valuable if the calculating method that Thuiswinkel.org developed were made visible on the check-out pages of every web-store. This would make clear to consumers the difference in emissions if they select same-day delivery versus 'slow' delivery. This could possibly also be applied to a difference between selecting peer-to-peer parcel delivery options that are already driving, peer-to-peer parcel delivery options that drive specifically for that one package, and traditional transportation. A more forceful approach to solve this would be to calculate the excess external costs that are being made because of the faster option, and charge those costs directly to the consumer.

Bevir's table of governance arrangements

The recommendations mentioned above are summarised in the table below, in their appropriate place.

	Hierarchy	Market	Network
Economic Instruments	Research the cap on the amount of money made through peer-to-peer platforms (regulatory level) / Implement a system	By reducing compensation, the crowd is less likely to make a drive solely for one package. A bundling bonus structure could increase compensation accordingly	The creation of a cross organisational bundling platform can improve overall efficiency for last mile deliveries in the

	like Benefits Portability to ensure worker benefits/ Impose higher excise duties		transportation sector
Communicative Instruments	Information spreading for behaviour change (municipal level) / Clearly communicating municipal plans regarding transportation to all involved actors	Show market actors the potential of peer-to-peer parcel delivery and focus on the benefits of scale / Reach out to similar platforms to increase efficiency / Sharpen emission based admission requirements for cars / Communicate to consumers the impact of fast vs. slow delivery	Include peer-to-peer parcel delivery platforms in Green Deal ZES operations.
Legal Instruments	Registration of peer-to-peer parcel delivery platforms (regulatory level)	Create a sharing economy interest group to advocate on behalf of platforms in e.g. the EU	Codifying the Topsector goals and results from the Green Deal ZES

Table 6: Summarizing possible governance arrangements in Bevirs table

In the previous chapter, the risks of peer-to-peer parcel delivery were broken down in five points. In this chapter, the possibilities to counter these risks were discussed, leading to the following summary:

First, the platforms operate in a social and regulatory vacuum, have very little relations with other actors in the field, and although they are officially required to supply information to regulatory agencies, this is difficult to enforce. They also do not have an overarching trade association or representing organ, which sidelines them during negotiations and makes them hard to approach.

It can be argued that peer-to-peer parcel delivery initiative platforms benefit from operating in a regulatory vacuum, with few rules and regulations to follow. Although this definitely true to a certain extent, the governance environment will eventually catch up, as is happening now, and when this happens it will undoubtedly be beneficial for the platforms to be part of the discussion instead of passively waiting for decisions to be made. To help form this governance environment, several options are available for the platforms. First, the platforms can create an interest group or trade

association that will represent the initiatives in public discussions and advocate on their behalf. While this sector is still relatively small, the interest group can start off small as well, focusing for instance on pilot projects with local municipalities and market actors to create interest and results geared toward sustainable development. This growing interest can grow into serious relations between actors, and more users. To ensure relevant and up-to-date knowledge on the size of these platforms, a closer partnership with the Chamber of Commerce is needed for regulatory organizations.

Second, a lack of users on the platforms, due to which the mass to more easily bundle deliveries is harder to obtain.

By communicating the environmental benefits of peer-to-peer parcel delivery, the platforms can potentially attract a niche group of companies and individuals similar to the early users that used the platforms for their environmental core values, that could assign initial business deliveries to the platform. This could go hand in hand with the pilot projects linked to the Green Deal ZES discussed above. Although this will most likely not reach the economies of scale the platforms ideally would reach to really incorporate bundling, this could provide the platforms with enough transactions to alleviate a certain degree of uncertainty on the business end, and thus make it more interesting for regular businesses as well. As all actors see a role for digitalisation and the bundling of delivery streams, the inclusion of peer-to-peer parcel delivery initiatives to this type of bundling platform could add a lot of delivery options for peer-to-peer parcel delivery initiatives. Relationships with traditional package delivery to handle requests that would normally fall out of scope of the organization would also provide more delivery requests.

Third, it is currently financially attractive for drivers to make a trip specifically for a single delivery.

Changing the financial rewards for drivers to incentivize the delivery and pick up of multiple package could be achieved by partially covering driving costs for individual packages (making the drop off of individual packages solely interesting for people already driving), while combining packages can scale rewards and thus still adding to the drivers financial independence.

Fourth, the drivers and users are not incentivized to prioritize environmental impacts over financial gains, or are not aware of the environmental impacts this behaviour brings.

Knowledge sharing from market actors towards Dutch citizens about the impacts of different kinds of package delivery could create a higher level of awareness. The government can put higher excise duties on more polluting options, thus forcing the less sustainable options to also be the most

expensive. Municipalities can also share information on the impact of transport, for example in the case of Amsterdam, the increasing pressure on the bridges and quays [7:23].

Fifth, the broader risk of labour contract degradation and the erosion of social values such as insurance can financially endanger workers who have accidents.

Systems like Benefits Portability, in which benefits like wage insurance, health insurance, disability, and injury insurance are individual packages that move with the flexible worker switch between jobs should be researched by institutions like the WRR.

In summary, the table of Bevir shows the different gaps in the current governance arrangements, but also hands the tools to think of ways to fill these gaps. The Hierarchy column contains measures that can only be filled by governmental actors, but these actors are not bound to just hierarchical measures. Especially the Network column contains instruments that fit in the triple helix approach of Academia, State & Industry partnerships. It can be seen that currently, the Industry mainly involves the 'traditional' transportation organizations and their trade associations, and it is suggested in this chapter that peer-to-peer platforms also be included in these partnerships. The manner of involvement also heavily depends on the actions of the peer-to-peer platforms themselves, as it should not be expected that they can wait passively while they keep operating in the regulatory void. Although operating like this might be favourable for them currently, if they look ahead, they can see that tighter regulation concerning the transportation sector as a whole is on its way. If these platforms take up a proactive role, they will have a voice in the transition, while also making this transition happen more rapidly.

Chapter 8: Conclusion, Recommendations, and Discussion

Conclusion

This research explored the development of the peer-to-peer parcel delivery sector in the Netherlands and ways sustainability can be protected within these initiatives. The expected growth of these initiatives is explained by placing them in the larger systems of the sharing economy and the circular economy. In the desk study I found literature that expects significant growing potential for the sharing economy, estimating as much as an expected 25% a year (with outliers of up to 63% by 2025). This is supported by looking at the diversity and size of the current sharing economy, especially when comparing it to a few years ago. Tellingly, in the honeycomb visualization of the sharing economy a growth from 6 sectors in 2014 to 16 sectors in 2016 can be seen.

The growth of peer-to-peer parcel delivery initiatives is not unexpected when looking at the size and complexity of the transportation and logistics sector. Intertwined issues like congestion, inefficiency, and air pollution are sticking out like sore thumbs in city centres. However, the growth of peer-to-peer parcel delivery initiatives is not without risk, and might not be as sustainable as originally expected. In order to research which government arrangements can be used to safeguard sustainability when dealing with peer-to-peer parcel delivery initiatives in the Dutch transportation sector, the sub-questions will first be answered:

Which actors are active in the Dutch peer-to-peer parcel delivery sector?

The Dutch transportation sector in which peer-to-peer parcel delivery initiatives operate consists of a multitude of actors that can be divided in four categories:

- o Knowledge Institutes: this category contains several knowledge institutes specifically focussed on research in the transportation sector. The VIL, HvA department City Logistics and the UvA are part of this category.

- o Government: governmental organisations on all levels fall in this category. This includes municipalities on the local level, the ministries of Economics & Climate and Infrastructure & Waterways on the national level and the regulatory institutions such as the ACM and the Tax Authorities.

- o Market organisations: this category contains all traditional transportation- and courier services, and their accompanying trade associations.

- o Peer-to-peer platforms: there are five national and five international peer-to-peer platforms parcel delivery platforms active within the Netherlands.

How do peer-to-peer parcel delivery platforms incorporate sustainability?

Peer-to-peer parcel delivery initiatives find their roots in the circular- and sharing economies. The circular economy aims to slow down the use of virgin stock by prolonging the lifespan of products, while the sharing economy consists of consumers sharing their idle capacity with other consumers, possibly for money. The decrease of idle capacity through sharing means that the materials and products in society get used more intensively, which will decrease the demand for new products. The term Sharing Economy ranges further than just the exchange of tools and materials, but also encompasses services that rely on idle capacity like housing or car rental. Actors and initiatives within the sharing economy can be fall in a broad spectrum, from profit to non-profit and from sharing between organizations to sharing between individuals. Peer-to-peer parcel delivery is an example of developing initiatives in the sharing economy. The initial idea of peer-to-peer parcel delivery centred around people picking up and delivering packages on travels they would make even if they would not deliver these packages. This would make this type of package delivery more sustainable than traditional package transportation.

Both PickThisUp and Just Cargo initially started with environmentally focussed core values, wanting to reduce emissions by making use of vehicular movements that were already being made. These values quickly turned out not to resonate with their main user and client base and economic and social values were prioritized. Both platforms deviated from the original form of peer-to-peer parcel delivery where rides get logged beforehand, towards a system that only logs parcels that need to be delivered. Although sustainability has been indicated to be an important value for these platforms, the current role of sustainability within the platforms is more in the background. Organisational decisions had to be made to keep the platforms operational and viable, and the sustainability values the platforms kept as core values endangered these. Just Cargo still tries to incorporate sustainability within the platform, but more as an addition than as a core value.

What are the potential societal benefits and risks related to sustainability within peer-to-peer parcel delivery?

In the literature studies I supply literature that show that crowd logistics hold the potential to reduce issues such as congestion and air pollution by making use of the already present stock and guiding, storing, and transporting goods through a finely meshed network of connected citizens, thus cutting emissions and financially empowering citizens. In interviews held with municipalities and trade associations this got recognized, and these actors see chances to create a more bundled, efficient

transportation system, incorporating more than just parcel delivery and potentially saving on emissions.

However, these benefits do not come without risk. I showed studies that researched the current impacts of peer-to-peer parcel delivery services, which are considerably less effective than traditional transportation organisations, adding mainly to air pollution, noise pollution and congestion. These effects can be explained by drivers often going specifically out of their way for (and often even making trips just for) one package at a time. Other risks found in the literature by Codagnone *et al.*, (2016) include the erosion of labour contracts and the prevalence of contingent labour, which are supported by perceived challenges of trade associations and knowledge institutes. The congestion concerns are shared by many actors, but governmental organisations believe the peer-to-peer parcel delivery sector has a market share that is too small to already start drafting policy concerning these initiatives.

In the analysis chapter, the risks accompanying peer-to-peer parcel delivery are broken down in five clear points:

First, the platforms operate in a social and regulatory vacuum, have very little relations with other actors in the field, and although they are officially required to supply information to regulatory agencies, this is difficult to enforce. They also do not have an overarching trade association or representing organ, which sidelines them during negotiations and makes them hard to approach.

Second, a lack of users on the platforms, due to which the mass to more easily bundle deliveries is harder to obtain.

Third, it is currently financially attractive for drivers to make a trip specifically for a single delivery.

Fourth, the drivers and users are not incentivized to prioritize environmental impacts over financial gains, or are not aware of the environmental impacts this behaviour brings.

Fifth, the broader risk of labour contract degradation and the erosion of social values such as insurance can financially endanger workers who have accidents.

What governance arrangements are currently in place for peer-to-peer parcel delivery initiatives and how effective are these in safeguarding sustainability?

Very few governance arrangements exist specifically for peer-to-peer parcel delivery. It was shown in chapter 4 that the platforms had no real relationships with any of the other actors, and were bound by only two pieces of governmental regulation: All platforms are supposed to register at the

ACM registry, a measure that is currently hard to enforce (even more so when taking into account how platforms tend to define themselves in a different manner than society sees them. Think, for example, of Uber describing itself as an 'innovative platform' instead of a transportation provider). The other regulation is the income taxation system for the drivers, putting a cap on the amount of money drivers can earn tax-free annually. Specifically looking at measures that safeguard sustainability in regards to peer-to-peer parcel delivery, it seems that currently, there are no governance arrangements in place at all. This does not mean that the ones in place are not useful, and especially after re-evaluation these regulations can help developing a clearer understanding of the role of peer-to-peer parcel delivery platforms, and to provide the means to create a sustainability focussed framework for these initiatives.

Instead of being occupied with peer-to-peer parcel delivery, the attention of the different actors in the transportation sector is currently focussed on the cross-organisational Green Deal ZES which has a goal to reduce the CO_2, NOx, and particulate matter emissions caused by city logistics to zero (or as close to zero as possible). This is done by testing methods and innovations through living labs in different municipalities. The challenges and opportunities in both the regulatory and regular environment are being recorded, and feasible practices will be scaled up nationwide, and shared with all participating actors.

What are possible governance arrangements that fill the gaps that exist in the current regulations regarding the safeguarding of sustainability?

There are several recommendations that can be made to protect sustainability when it comes to peer-to-peer parcel delivery. In the literature studies I showed results from Merckx *et al*. (2017) that revealed that current peer-to-peer parcel delivery initiatives turned out to be less sustainable than traditional package delivery, but also showed that there are options available for peer-to-peer package delivery to become more efficient and greatly reduce their external costs, for example by delivering more packages in one trip or by planning deliveries during trips that already needed to be made. Combining these results with the data gathered from the interviews, they will be shortly discussed in order of Hierarchy, Market, and Network.

Hierarchy – government actors should review the cap on the amount of money made through peer-to-peer platforms, and review the payment structure of peer-to-peer parcel delivery. They should also look into the implementation of a system like Benefits Portability to ensure the protection of worker benefits. Spreading information for behavioural change and clearly communicating municipal plans regarding transportation to all involved actors is an important task for municipalities.

Regulatory organisations should consider stricter enforcement of the registration of peer-to-peer parcel delivery platforms and the data they supply.

Market - By reducing compensation, the crowd is less likely to make a drive solely for one package. A bundling bonus structure could increase compensation accordingly. Peer-to-peer parcel delivery initiatives should show market actors their potential and focus on the benefits of scale. It would be beneficial for peer-to-peer parcel delivery initiatives to reach out to similar platforms to increase efficiency. It is also a possibility to sharpen emission based admission requirements for cars and to create a sharing economy interest group to advocate on behalf of platforms in the EU.

Network - The creation of a cross organisational bundling platform can improve overall efficiency for last mile deliveries in the transportation sector while including peer-to-peer parcel delivery platforms in Green Deal ZES operations will pull these initiatives out of their current regulatory- and relational vacuum. To enforce the results of the Green Deal and to discourage stragglers, the goals and results from the Topsector and Green Deal should be codified.

In the previous sections the potential risks and benefits of peer-to-peer parcel delivery initiatives were explored, the role of sustainability within them was researched, and the other actors and governance arrangements that are active in the Dutch transportation sector are mapped. This leads to the answering of the main research question:

What kind of governance arrangements can be used to safeguard sustainability when dealing with peer-to-peer parcel delivery?

It has been shown in the literature studies that peer-to-peer parcel delivery initiatives have the potential to be more sustainable than current forms of 'traditional' parcel delivery. Currently, these initiatives have higher emissions and seem to exist in a relational and regulatory vacuum. This can be explained by the lack of governance arrangements and regulation directed at peer-to-peer parcel delivery initiatives, and their lack of partnerships with other actors in the transportation sector. It is not unimaginable that a relatively new business model is not yet as efficient and sustainable as it can potentially be and to strengthen this claim it was found in the literature studies, that peer-to-peer parcel delivery initiatives have the option to be equally sustainable, or even more sustainable, than traditional package delivery organizations. Combining this start-up inefficiency (an argument that gets supported by the earlier mentioned notion that there is currently a relatively small amount of users) with the gaps that exist in the types of governance arrangements concerning peer-to-peer parcel delivery initiatives, it seems a radical step to prohibit these kinds of initiatives and consider it

as an unwanted development in Dutch society. It is possible, but would be hard to enforce and would extinguish any sustainable promise these platforms have.

In this research, the governance dimensions of Bevir are applied to explore the different kinds of governance arrangements that can be used to safeguard sustainability when dealing with peer-to-peer parcel delivery. Currently, mainly Hierarchy arrangements are in effect, and do not have the main focus of safeguarding sustainability. Governance arrangements in the Market and Network sectors are missing. The different sectors provide possibilities, ranging from top-down Hierarchical regulatory measures to impose higher excise duties, to inclusive Network arrangements focused on creating bundling platforms that increase cooperation and data exchange. By creating an encompassing framework that makes peer-to-peer parcel delivery initiatives more connected with the rest of the Dutch transportation sector, there will be an involved peer-to-peer dimension that was shown to hold potential that reaches beyond solely parcel delivery. In involving the peer-to-peer initiatives in developments such as the Green Deal ZES, different actors can play into their strengths while finding innovative solutions to challenges that are associated with the transportation sector such as congestion and pollution.

The responsibility of safeguarding sustainability lies with all actors active in the transportation sector. The peer-to-peer parcel delivery platforms themselves have an obligation to work in both economically profitable and environmentally conscious ways. Several platforms already have age requirement for cars, but a next step would be creating a financial reward system that strongly encourages the delivery of multiple packages at once, while one-package deliveries should only be beneficial when already making a trip for another reason. The platforms that were interviewed both started off with sustainable core values, but were forced to choose economic and social values over sustainable ones. By actively seeking out the innovative partnerships occurring through the Topsector Logistiek nationally, and the Green Deal ZES on a local level, the platforms could restore their sustainable core values by forging connections and participating in the living lab experiments focused on logistical issues taking place in different municipalities in the Netherlands. The interviews provided the insight that all actors in the field think knowledge dissemination towards users and consumers is considered a crucial responsibility, and through efforts from all involved actors, consumer awareness can be raised. Behavioural change of consumers to opt for the most sustainable option is not currently the standard choice, and actors should work together to make it the obvious choice. By raising prices of undesired options and making customers aware of the impacts and high external costs of options like same-day delivery, the collective of actors in the Dutch transportation sector can create a more sustainable way of package delivery.

Recommendations for Practice

To keep up with the expected growth of peer-to-peer parcel delivery initiatives, it is recommended to re-evaluate the registration requirements for these kind of initiatives with regulatory agencies, and take into account the information that would be required to provide a clear image of the size of these initiatives. The effect of higher excise duties on less sustainable parcel delivery options can also be measured and different forms of consumer awareness raising through both governmental and market actors can provide interesting results.

Consumer awareness proved to be a big issue for the different actors in the field. The importance of knowledge dissemination should not be understated, and joint informational campaigns of government and market actors targeting the growing group of e-shoppers about the importance of sustainable and conscious shopping is very important.

Several possibilities for cleaner inner city logistics were mentioned in the interviews, one of them being Cargo Hubs at the edges of cities. It would be very interesting to see research on the different ways these can be arranged and in what way partnerships between transportation organizations, and peer-to-peer parcel delivery initiatives, can take place when using the same hubs.

Digitalization is a topic that came back multiple times with different actors during the interviews, and research into the possibilities and options for a platform that could achieve a more bundling-focussed environment would be very welcome. It could also be interesting to look at the logistics of creating municipally arranged inner city parcel delivery, and the different forms that could take.

For peer-to-peer parcel delivery platforms, it is recommended to seek contact with local actors in the transportation field that are also connected to the Green Deal.

Recommendations for Further Research

Peer-to-peer parcel delivery as a research topic is still relatively new. Little research exists in the impacts of these initiatives on society—environmental or otherwise. This thesis is an exploratory research aimed at gathering possible governance arrangements to protect sustainability. However, none of the governance arrangements that were found have been tested on quality or effectiveness, and it is recommended that these recommendations do get tested before implementation. Although the research of Merckx et al. (2017) provided an interesting insight in the emissions of peer-to-peer parcel delivery initiatives, a broader, comparative study researching the external costs of several peer-to-peer parcel delivery initiatives would be extremely valuable. It is also recommended to research the social impact of peer-to-peer parcel delivery on its drivers. The priorities and reasoning of users and drivers of the peer-to-peer parcel delivery initiatives could provide interesting insights

into the way the public sees these platforms. Research into the behavioural change of consumers in relation to the implementation of the emission calculator created by Thuiswinkel.org could also be valuable. If the results showed that the mere fact of making the change in impact concrete for the consumer would change his or her behaviour, more measures in this area could be taken to maximize impact. It is advised to research the possible erosive nature of peer-to-peer working contracts in the Netherlands, since the Dutch system could also be susceptible for these issues—exemplified by the legal case between Deliveroo (a crowd-based food delivery service) and one of its employees over employee conditions and benefits (Zembla, 2018). A comparison of the societal impacts of sharing economy platforms between countries with weaker social systems (e.g. the USA) and the Netherlands could provide helpful insight in whether the dangers of quality- and terms of employment erosion are as pressing here as they are abroad.

Discussion and reflection

This thesis used a broad, exploratory framework on purpose, to explore the different sorts of governance arrangements currently active within the Dutch transportation sector with regard to peer-to-peer parcel delivery initiatives.

The research combined theoretical knowledge from a desk study with practical knowledge taken from actors active within the Dutch transportation sector. This gave me the ability to link the data from academic papers to the challenges and chances that peer-to-peer parcel delivery initiatives, and the other actors, encounter in practice. By doing so, I gained knowledge in why peer-to-peer parcel delivery initiatives currently struggle with being sustainable and economically active at the same time, and why Dutch governmental actors are choosing not to opt for regulation of these initiatives, but instead focus on the Green Deal Zero Emission Stadslogistiek. It was interesting to hear the different approaches of different municipalities, and to see how actively trade associations and their constituency are already researching sustainable transport. However, incorporating such a broad framework comes with several downsides. For instance, I have not researched the environmental impact of Dutch peer-to-peer parcel delivery initiatives, but instead have based this on a study conducted in Belgium by the VIL. Peer-to-peer parcel delivery initiatives are still very young, and very small. It is unclear in what ways they will develop, but this is a situation that can be shaped by the actions taken today concerning these initiatives. It should also be noted that due to geographical constraints, this thesis has a relatively small sample size, with, among others, interviews of 2 platforms, 2 trade associations and 2 municipalities. It is possible that in different countries other results will be found. Apart from that, it is difficult to favour one public value (in this case environmental sustainability) over another (like financial independence, or privacy etc.). This is

also not something that was the intention of this research, it was meant to look at peer-to-peer parcel delivery initiatives under the assumption that sustainability is considered an important public value. In this research, it was not possible to get in touch with drivers and users of the platforms, to take into account their reasoning and priorities, which may have produced interesting results. I have given several recommendations for governance arrangements, but cannot give any information on their quality or effectiveness, this is for other researchers to explore.

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Acknowledgements

Appendices

Appendix 1: Peer-to-peer parcel delivery platforms active in the Netherlands

NAME	WEBSITE	CITY/COUNTRY OF HQ	YEAR FOUNDED
Nationally Operational			
Sjipit	http://www.sjipit.nl/	Breda	2015
Just Cargo	https://justcargo.com/	Den Bosch	2016
Brenger	https://brenger.nl/nl/hoe-het-werkt	Amsterdam	2016
PickThisUp	pickthisup.nl	Amsterdam	2015
Trunkrs	trunkrs.nl	Vianen	2017
Internationally operational			
Many Ship	manyship.com	USA	2013
piggybee	piggybee.com	Belgium	2012
JadeZabiore	jadezabiore.pl	Poland	2018
Can U Bring	canubring.com	Mexico	2012
Nimber	https://www.nimber.com/	Norway	2010

Appendix 2: All participants of the Green Deal ZES

Trade Associations	Logistical Companies	Governmental Organisations	Vehicle Producers	Shippers and Receivers	Other
Bovag	TransMission	Gemeente Den Haag	4 Wieler	Albert Heijn	Green Business Club Utrecht Centraal
Deltalinqs	2W Logistiek	Gemeente Enschede	Electrocar	Bidfood	Hogeschool van Amsterdam
EVO	Apollo Verhuizingen	Gemeente Deventer	Emoss	Heineken	Binnenstad Service NL
Nationaal LNG Platform	Breytner	Gemeente Zwolle	E Trucks	Hema	Bluekens
Natuur & Milieu	Bubble Post	M. Economische Zaken	GINAF	Lekkerland	Brimos
Rai Vereniging	CB	M. Infrastructuur en Milieu	Hytruck	Sligro	Carrier
TLN	CombiPakt	City of Rotterdam	Innimo		DAM
	Combipakt Nijmegen	Gemeente Amsterdam	Iveco Schouten		E-Traction
	Cornelissen Groep	Gemeente Arnhem	Nissan		Fietsdiensten.nl
	De Rooy Transport	Gemeente Delft	Renault		Holthausen
	Deudekom	Gemeente Groningen	Spijkstaal		ING
	DHL	Gemeente Haarlem	Van Kessel		Levitas
	Fietskoeriers	Gemeente Maastricht	Voltia		Maatwerk Distributie
	G. Snel	Gemeente Nijmegen			Nomad
	Middelkoop	Gemeente Tilburg			Orange solar
	Mondial Aad de Wit Verhuizingen	Gemeente Utrecht			Picnic
	Nabuurs				PitPoint
	Peeters Vervoerscentrale				Rolande LCNG
	Peter Appel Transport				Synple
	Portena				Thermoking
	Post NL				TNO
	RSB				Wasautomaten verhuur
	Simon Loos				

St vd Brink	
Stad Alkmaar	
TSS	

Appendix 3: Interview Protocols

Platform

Inleidend (only displayed once)

Allereerst wil ik u hartelijk bedanken dat u de tijd en moeite heeft genomen om met mij een gesprek in te plannen om het over peer-to-peer pakket bezorging te hebben! Zoals we eerder besproken hebben ben ik geïnteresseerd in de manier waarop deze platformen zich positioneren in de huidige transport markt, met wat voor een soort regelgeving en samenwerkingen ze te maken hebben en in hoeverre duurzaamheid een rol speelt binnen dit soort platformen. De tijd die we voor dit interview gepland hebben is een uur.

Dit interview wordt compleet vertrouwelijk behandeld, en u zal niet bij naam geciteerd worden. Het interview focust zich in principe om de standpunten van de organisatie als geheel. Mocht u niet comfortabel zijn met bepaalde vragen, dan kunt u dit aangeven. Het staat u altijd vrij om geen antwoord te geven op vragen, of het interview af te breken.

Graag zou ik dit interview opnemen. Deze opname zal alleen gebruikt worden om achteraf het interview te transcriberen. Gaat u hier mee akkoord?

Mocht u geïnteresseerd zijn, dan kan ik u na afloop van het project een kopie van de resultaten sturen. De verwachting is dat het project na de zomer volledig afgerond zal zijn.

Naam, functie, leeftijd van respondent

Which actors are active in the field of peer-to-peer parcel delivery? (empirical)

Wat zijn de doelen van het platform? (begin met wat zelf gevonden is, kan de respondent hier nog iets aan toevoegen?)

Met welke partijen heeft het platform in de praktijk te maken?

      Andere platformen, instituties, overheden, transportbedrijven, burgers, ondernemers?

Met wie werken ze samen, wat voor afspraken hebben ze?

Met wat voor soort uitdagingen heeft het platform te maken als het gaat om transport binnen haar organisatie?

How do actors interpret and balance sustainability? (empirical)

Wat verstaat de respondent onder duurzaamheid? Misschien iets als: "Mijn onderzoek gaat over p2p parcel delivery en duurzaamheid. Waar denkt u aan bij duurzaamheid in relatie to p2p pd?"

Wat voor een rol speelt duurzaamheid voor de organisatie?

> Hierbij ook proben over wat voor keuzes ze maken, om zo te zien welke waarden er nog
> meer spelen binnen de organisatie, en hoe duurzaamheid en de andere waarden worden
> gebalanceerd. Kijk hoe duurzaamheid wordt vormgegeven

<u>What current rules and regulations are in place? (empirical) + What kind changes are recommended
to protect sustainability? (recommendation)</u>

Door wie worden ze gecontroleerd/wie legt ze regels op?

> Haak hierbij ook in op verbeterpunten als de respondent signalen afgeeft dat hij/zij hier niet
> helemaal tevreden over is. Vraag ook naar normen, praktijken, routines en cultuur: de
> informele gang van zaken

Overheidsinstanties/Markttoezicht
<u>Inleidend</u>

[…]

Naam, functie, leeftijd van respondent

<u>Which actors are active in the field of peer-to-peer parcel delivery? (empirical)</u>

Wat zijn de doelen van de organisatie? (begin met wat zelf gevonden is, kan de respondent hier nog
iets aan toevoegen?)

Wat weet de respondent over peer-to-peer pb platformen?

Met welke partijen heeft de respondent in de praktijk te maken?

> platformen, instituties, overheden, transportbedrijven, burgers, ondernemers?

Met wie werken ze samen, wat voor afspraken hebben ze?

Met wat voor soort uitdagingen heeft de organisatie te maken als het gaat om transport?

<u>How do actors interpret and balance sustainability? (empirical)</u>

Wat verstaat de respondent onder duurzaamheid? Misschien iets als: "Mijn onderzoek gaat over p2p
parcel delivery en duurzaamheid. Waar denkt u aan bij duurzaamheid in relatie to p2p pd?"

Wat voor een rol speelt duurzaamheid voor de organisatie?

Hierbij ook proben over wat voor keuzes ze maken, om zo te zien welke waarden er nog meer spelen binnen de organisatie, en hoe duurzaamheid en de andere waarden worden gebalanceerd. Kijk hoe duurzaamheid wordt vormgegeven

<u>What current rules and regulations are in place? (empirical) + What kind of changes are recommended to protect sustainability? (recommendation)</u>

Wat zijn belangrijke regels en richtlijnen met betrekking tot peer-to-peer platformen?

Haak hierbij ook in op verbeterpunten als de respondent signalen afgeeft dat hij/zij hier niet helemaal tevreden over is. Vraag ook naar normen, praktijken, routines en cultuur: de informele gang van zaken

Lokale Overheid
<u>Inleidend</u>

[…]

Naam, functie, leeftijd van respondent

<u>Which actors are active in the field of peer-to-peer parcel delivery? (empirical)</u>

Wat zijn de doelen van de lokale overheid als het gaat om transport??? (begin met wat zelf gevonden is, kan de respondent hier nog iets aan toevoegen?)

Met wat voor soort uitdagingen heeft de lokale overheid te maken als het gaat om transport binnen haar grenzen?

Wat weet de respondent over peer-to-peer pb platformen?

Met welke partijen heeft de respondent in de praktijk te maken?

platformen, instituties, overheden, transportbedrijven, burgers, ondernemers?

Met wie werken ze samen, wat voor afspraken hebben ze?

<u>How do actors interpret and balance sustainability? (empirical)</u>

Wat verstaat de respondent onder duurzaamheid? Misschien iets als: "Mijn onderzoek gaat over p2p parcel delivery en duurzaamheid. Waar denkt u aan bij duurzaamheid in relatie to p2p pd?"

Wat voor een rol speelt duurzaamheid voor de lokale overheid?

Hierbij ook proben over wat voor keuzes ze maken, om zo te zien welke waarden er nog meer spelen binnen de organisatie, en hoe duurzaamheid en de andere waarden worden gebalanceerd. Kijk hoe duurzaamheid wordt vormgegeven

What current rules and regulations are in place? (empirical) + What kind changes are recommended to protect sustainability? (recommendation)

Wat zijn belangrijke regels en richtlijnen met betrekking tot transport en peer-to-peer platformen?

Haak hierbij ook in op verbeterpunten als de respondent signalen afgeeft dat hij/zij hier niet helemaal tevreden over is. Vraag ook naar normen, praktijken, routines en cultuur: de informele gang van zaken

Kennisinstituut
Inleidend

[…]

Naam, functie, leeftijd van respondent

Which actors are active in the field of peer-to-peer parcel delivery? (empirical)

Wat zijn de doelen van de organisatie? (begin met wat zelf gevonden is, kan de respondent hier nog iets aan toevoegen?)

Wat voor een ontwikkeling heeft de respondent gezien in de transportsector?

How do actors interpret and balance sustainability? (empirical)

Wat verstaat de respondent onder duurzaamheid?

Wat voor een rol speelt duurzaamheid voor de organisatie? Misschien iets als: "Mijn onderzoek gaat over p2p parcel delivery en duurzaamheid. Waar denkt u aan bij duurzaamheid in relatie to p2p pd?"

In het project dat is uitgevoerd, waren er relevante verschillen tussen de verschillende transportopties als het gaat over externe kosten zoals luchtvervuiling?

What current rules and regulations are in place? (empirical) + What kind changes are recommended to protect sustainability? (recommendation)

Wat zijn belangrijke regels en richtlijnen in België met betrekking tot peer-to-peer platformen?

Haak hierbij ook in op verbeterpunten als de respondent signalen afgeeft dat hij/zij hier niet helemaal tevreden over is. Vraag ook naar normen, praktijken, routines en cultuur: de informele gang van zaken

Brancheorganisatie

Inleidend

[…]

Naam, functie, leeftijd van respondent

Which actors are active in the field of peer-to-peer parcel delivery? (empirical)

Wat zijn de doelen van de organisatie? (begin met wat zelf gevonden is, kan de respondent hier nog iets aan toevoegen?)

Wat voor soort organisaties vertegenwoordigt de organisatie?

Met wat voor soort uitdagingen heeft de organisatie te maken als het gaat om transport?

Met wie werken ze samen, wat voor afspraken hebben ze?

平台, instituties, overheden, transportbedrijven, burgers, ondernemers?

platformen, instituties, overheden, transportbedrijven, burgers, ondernemers?

Wat weet de respondent over peer-to-peer pb platformen?

In hoeverre heeft de organisatie met dit soort platformen te maken?

How do actors interpret and balance sustainability? (empirical)

Wat verstaat de respondent onder duurzaamheid? Misschien iets als: "Mijn onderzoek gaat over p2p parcel delivery en duurzaamheid. Waar denkt u aan bij duurzaamheid in relatie to p2p pd?"

Wat voor een rol speelt duurzaamheid voor de organisatie?

Hierbij ook proben over wat voor keuzes ze maken, om zo te zien welke waarden er nog meer spelen binnen de organisatie, en hoe duurzaamheid en de andere waarden worden gebalanceerd. Kijk hoe duurzaamheid wordt vormgegeven

What current rules and regulations are in place? (empirical) + What kind changes are recommended to protect sustainability? (recommendation)

Wat zijn belangrijke regels binnen de transportsector? Postwet, nog andere?

Zijn deze ook van toepassing op platformen?

> Haak hierbij ook in op verbeterpunten als de respondent signalen afgeeft dat hij/zij hier niet helemaal tevreden over is.

Appendix 4: Transcripts of the interviews

Interview ACM, 22-05-2018

Interview TLN 23-05-18

Interview Pick This Up, 28-05-18

Interview Just Cargo 31-05-18

Interview Gemeente Utrecht 15-06-18

Interview Thuiswinkel 19-06-18

Interview Connekt Delft 14-06-18

Interview Gemeente Amsterdam 20-06-18

Appendix 5: Full list of Quotations