# CHALLENGES OF SOCIAL INNOVATIONS IN URBAN FREIGHT TRANSPORT

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## ABSTRACT

Environmental and social innovations within urban freight transport are essential tackling sustainable challenges. The current debate of sustainable innovations in urban freight transport mainly focuses on how companies can create and add environmental and ecological value to their products and services. Social innovations are rarely addressed in urban freight transport. This research addresses the knowledge gap about challenges parcel service providers face when developing and implementing social innovations and how social innovations can be further integrated in urban freight transport. Semi-structured interviews were used in one case study in the parcel delivery sector. There are different challenges to integrate social innovations for different stakeholders like employees, customers and the society. Therefore, future social innovations in organizations need other measurement factors than profitability. Further, an awareness has to be created, so that customers are able to consciously decide for a parcel delivery company that is socially innovative. Thus, holistic social innovations for the society can be created.

# INTRODUCTION

Today global trade and distribution are increasing (Dündar, Ömürgönülşen, & Soysal, 2021; Bosona, 2020) resulting in negative effects like air pollution, high emissions, traffic, and noise pollution especially in cities (Dündar et al., 2021; Dolati Neghabadi, Samuel & Espinouse, 2019). "*It could be argued that there are no alternatives to the redirection of transport systems towards economic, social and environmental sustainability.*" (Arvidsson, Woxenius, & Lammgård, 2013). The World Economic Forum projects that without any intervention emissions from delivery vehicles in the top 100 cities globally will increase by 32% until 2030 (Hillyer, 2020). That shows how crucial sustainable urban freight transport is, to make future transport more sustainable.

To deliver greater social and environmental sustainability within different industries, innovative solutions are increasingly recognized (Lüdeke-Freund, 2010). However, sustainable innovations often only focus on ecological sustainability, such as eco-innovation and leave out the social dimension (Carrillo-Hermosilla, Del Rio & Könnölä, 2010).

Social innovations *"aim to have a broader impact on the social system and/or experiences of a vulnerable social group as a whole."* (Shier, Handy & Jennings, 2019). Social innovations always provide some degree of novelty and long-term success, which distinguishes them from short-term initiatives (Shier et al., 2019). Social innovations can go in different directions, like neighborhood projects with a broader impact or a company kindergarten with a limited impact. During their implementation phase social innovations often face several challenges like lack of support structures, missing communicative structures or no sufficient financial support (Christmann, 2020). Stakeholders fixed in their routines could feel threatened by social innovations and try to hinder the change (Christmann, 2020).

In urban freight transport just a few social innovations are in place which focus on accident risk, health effects, job satisfaction, customer satisfaction and contribution of new jobs (Popovic, Barbosa-Póvoa, Kraslawski & Carvalho, 2018; Dündar et al., 2021).

Social change in urban freight transport is important for all city residents and especially for these being impacted by noise and traffic in their living conditions (Greene & Wegener, 1997). Social innovations in urban freight transport can have an impact on the whole society, this is why research in this area is quite relevant.

In contrast, the discussion of urban freight transport from a social point of view is still very limited and there are challenges that are not sufficiently studied yet (Bosona, 2020). Creating knowledge about obstacles organizations face to engage in social innovations is an important area of study as organizations can be an important contributor to implementing these (Shier et al., 2019; Dolati Neghabadi et al., 2019; Bosona, 2020). This is why this study aims to answer the research question *What challenges parcel service providers face to develop and implement social innovations and how social innovations can be further integrated in urban freight transport?* This study contributes to sustainable research in urban freight transport and can help to identify challenges for parcel service providers to implement and further develop social innovations within urban freight transport. This can help other companies within the same sector to further implement social innovations but also enables social entrepreneurs to identify needs within large organizations and to create solutions that support the social mission in urban freight transport. If urban freight transport becomes more social, customers, employees and the society as a whole would benefit. This study can create concrete knowledge about barriers in practice and with that contribute to social innovation research. Some findings might be relevant in other business contexts as well and might help to develop a bigger picture in research about social innovations within organizations.

Lüdeke-Freund (2010) suggests that firms are treated as a black box, when it comes to innovative capacities within the company. Sustainable innovations can bring competitive advantage and are often implemented by small firms and adopted and mimicked by large firms who bring these innovations to the mass market (MacGregor & Fontrodona, 2011; Hockerts & Wüstenhagen, 2010). Therefore, this study conducted semi-structured interviews within one of the big players within the German parcel delivery industry. As part of this research effort, the findings from the interview will be analyzed in terms of what challenges organizations face in order to give recommendations on how social innovations in urban freight transport can further be developed.

The research is structured into six sections. The next section will give an overview of the theories of social innovations and the current state of social innovations in urban freight transport. Afterwards, in the third section, the methodology of this research will be described. In the fourth section, the findings of the study will be presented and discussed in the next section. The sixth and last section will conclude the main findings, give further research recommendations for social innovations and highlights some limitations of the study.

<center>**THEORY**</center>

**Social innovations**

Social innovation research has two different research streams. The first stream is seeing social innovations as a result of social horizontal collaboration between citizens and government (Christmann, 2020). The second research stream is defining social innovations as novel social practices, novel forms of organizations, novel regulations and novel approaches to meet existing needs (Christmann, 2020). Both research streams identify novelty as a key component of social innovations (Christmann, 2020).

Social innovations have an impact on the social system or a vulnerable social group (Shier et al., 2019). The main goal is to create value for final beneficiaries and customers (Gasparin et al., 2021). The term "social" includes a process and an outcome dimension, which means that social innovations are social in their ends and their means (Rüede & Lurtz, 2012). Therefore, the process of a social innovation should be collaborative and the aim is to contribute to a better human life (Rüede & Lurtz, 2012). Social innovations can occur in different dimensions and be relevant for different stakeholders (Rüede & Lurtz, 2012).  Shier et al. (2019) differentiate social innovations into socially transformative innovations like public awareness initiatives, product-based social innovations such as development of new methods and process-based social innovations which adapt organizational processes that improve outcomes for social groups.

*Organizational structures to implement social innovations*

In their research Shier et al. have examined, what the intraorganizational factors are, that influence innovation capacity (Shier et al, 2019). To foster social innovations, a learning culture within the organization should be encouraged and collaboration of different groups of employees should be promoted for social innovations (Shier et al., 2019). In addition, the

inclusion of staff in decision making at all levels is beneficial, as it can initiate change throughout the whole company (Shier et al.,2019). A shared mission among employees increases social innovations within the organization as well (Shier et al.,2019). Organizations have to create a holistic environment and involve all relevant stakeholders to support the engagement in social innovations (Shier et al., 2019). Organizations that were not considered to be innovative, can become innovative actors to solve societal sustainability challenges (Christmann, 2020). Therefore, individual businesses can be seen as important players to develop and implement social innovations (Loorbach & Wijsman, 2013).

Gasperin et al. (2021) looked at the process of social innovations. First a social problem is identified and an innovative idea is created to solve this problem. Second the internal and external network of beneficiaries and customers has to be mobilized to co-create social and cultural values. Third economic value has to be created for the company. And fourth the impact has to be assessed of creating social, cultural and economic value (Gasperin et al., 2021). This research will mainly focus on the development and implementation of social innovations in organizations.

*Challenges to implement social innovations*

Knowledge about what conditions hinder organizations to engage in social innovations is an important area of study (Shier et al., 2019). The implementation of social innovations is not always easy and actors within the field might have competing ideas (Christmann, 2020). In addition, the ecosystem of social innovations might lack support structures, communicative structures or financial support (Christmann, 2020). Challenges can occur between actors and within diverse contexts.

Social innovations often develop from conflict, sparked by the realization that existing routines do not work anymore. Actors fixed in routines can see their current processes be

destructed by social innovations (Christmann, 2020). Additionally, the management approach within an organization plays a role. Studies found out, that a top-down approach can hinder change and innovations (Shier et al., 2019; Cowie, Sandau & Ehrich, 2012). Social innovations require a collaboration of different actors from different disciplines, which can lead to different interests in outcomes (Domanski et al., 2020). Existing studies see a necessity of social innovations occurring simultaneous in economics, culture, politics and the society to solve complex challenges and improve sustainability (Domanski et al., 2020).

Social innovations can go in different directions (social transformative, product-based and process based) and can be implement in different areas for different stakeholders. Social innovations always include some degree of novelty and different intraorganizational structures can promote the innovation capacity within a company. The ecosystem of social innovations also plays an important role, as the ecosystem is providing support structures. Today, social innovations are rarely addressed as there are several challenges to implement them. The next section will show the current state of social innovations within urban freight transport.

**Social Innovations in Urban freight transport**

During recent years several innovations in urban freight transport have been proposed and implemented to improve negative consequences such as pollution, increased traffic, safety issues and destructive environmental effects (Dolati Neghabadi et al., 2019).

Innovative solutions in city logistics and urban freight transport often aim to achieve sustainability through economic development, social development or environmental protection (Russo & Comi, 2010; Arvidsson et al., 2013; Dolati Neghabadi et al., 2019; Dündar et al., 2021). A study by Dündar et al. (2021) found out that sustainable research in city logistics mainly focuses on the economic dimension as a driver among the triple bottom

line approach of sustainability (Dündar et al., 2021). Other studies have similarly found, that research in urban freight transport focuses mainly on environmental and economic aspects while social dimensions are rarely addressed (Bosona, 2020). However, most environmental effects in transport also have strong social outcomes with respect to the current generation (Greene & Wegener, 1997). Stakeholders of social innovations within urban freight transport can be customers, employees and the local community (Shier et al., 2019). Often low-income households are most impacted, as they live in urban, noisy areas and would benefit from a social change in urban freight transport (Greene & Wegener, 1997).

Social innovations in urban freight transport are often based on people, time and the product (Dündar et al., 2021). Social indicators include accident risk, health effects, job satisfaction, customer satisfaction and creation of new jobs (Popovic et at., 2018; Dündar et al., 2021). Applying the three dimensions of social innovations defined by Shier et al. (2019) to urban freight transport innovations, one could classify public awareness initiatives for safer traffic and less accidents as socially transformative innovations. Product-based innovations could be applied for less noisy and less polluting vehicles in urban freight transport to decrease health risks. And process-based social innovations could be innovations that increase customer satisfaction like desired-day delivery. The different types of social innovations, the impacted stakeholder and potential outcomes are illustrated in figure 1.

FIGURE 1

Social Innovations in Urban freight transport



In practice, social innovations in urban freight transport are still rare (Dündar et al., 2021).

One reason is the missing level of cooperation between different stakeholders (Dolati

Neghabadi et al., 2019). Further challenges implementing social innovations in urban freight

transport are not sufficiently discussed in research yet. By identifying these barriers, future

social innovation concepts could be developed to overcome them. Social innovations in urban

freight are important as these can have an impact on living conditions of citizens. Social

innovation research in urban freight can also help to further develop social transformative

innovations and introduce new concepts for for-profit companies. The next section will

describe the method of this research.

**METHOD**

In order to achieve the aims of this research and to answer the research question - *What challenges parcel service providers face to develop and implement social innovations and how social innovations can be further integrated in urban freight transport?* - a qualitative research approach was chosen. The study follows an abductive approach as the research theory derive from existing theories and findings in practice (Bell & Bryman, 2011: 60). As the social innovations in urban freight are not established in research yet, a qualitative approach with semi-structured interviews is chosen for this study (Edmondson & Mcmanus, 2007). Qualitative research can provide rich data about a phenomenon while also providing information on how practitioners analyze problems and design actions to solve these problems (Frank & Landström, 2016).

**Research Design**

A case study was chosen to provide an in-depth understanding of real-world behavior of a specific case (Yin, 2012). The study focuses on a single case study in a parcel delivery company in Germany. The company is focused on parcel shipping and can be an essential contributor when it comes to successful inclusion of social innovations within the urban freight transport in Germany. Frank and Landström (2016) stated that an interesting study must be relevant for practice, which is why the study tries to create knowledge within one specific case. This research can be relevant for other parcel shipping companies and could lead to different results within different contexts. In addition, novelty in urban freight research is created, as a large firm is analyzed, which can be an essential actor in transforming industries towards sustainable development (Hockerts & Wüstenhagen, 2010).

This study tries to solve the rigour–relevance gap by involving the research case within the development phase of the research through giving regular feedback (Frank & Landström, 2016). In addition, the study could contribute to new management practices within the

organization, as the researcher is simultaneously working within the organization (Frank & Landström, 2016).

*Hermes Germany*

Hermes Germany is part of the Otto Group, a German trading and service company, which was created 1972 by Werner Otto (Hermes, 2021a). The founder wanted to provide the Otto Group a better delivery service than the public German Post (Hermes, 2021a). Ever since the end of the 1990s Hermes is also delivering parcels from other B2B customers to the end consumer (Hermes, 2021a). Today, more than 10.500 people are working in eleven participating companies worldwide (Hermes, 2021a). In Europe Hermes is the biggest company to deliver parcels to the private customer (Hermes, 2021a). This report will only take Hermes Germany into account, which is centrally located in Hamburg (Germany). In 2017, Hermes Germany defined four central action fields of sustainability: Reduction of CO2, noise and emissions during the shipment, new solutions for delivery within urban areas, fair and attractive working conditions and positive contribution to society and policy (see figure 2). New social innovations could play a role in all of the action fields.

FIGURE 2

Hermes four central action fields of sustainability
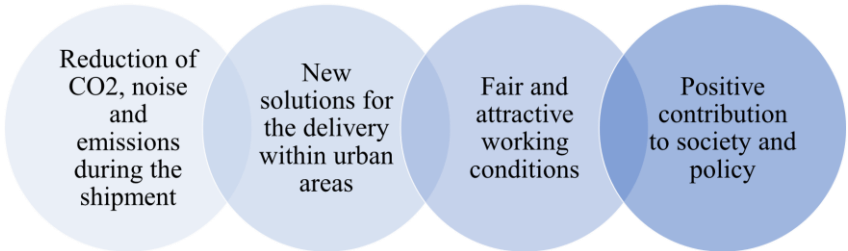
Using a single case study, rich data can be accessed. Different actors within the company are included resulting in a holistic organizational perspective. The sample includes employees from different departments (see table 1).

TABLE 1

Sample in this research

| Department | Number of Interviewees | Duration (Minutes) |
|---|---|---|
| Electro mobility | 1 | 30:41 |
| Corporate Responsibility | 1 | 23:11 |
| Compliance | 1 | 29:04 |
| Last Mile Development | 1 | 41:03 |
| Cultural Change | 1 | 16:12 |
| Innovations Departments | 2 | 14:11; 29:44 |

This creates a diverse sample set within the company and illustrate individual views from different departments with different experience and knowledge. All interviewees had to work in a department directly or indirectly connected to social innovations. The participating departments were selected in cooperation with another employee at Hermes, who was supporting the research. As a result, it was possible to interview employees with a direct connection to innovation in their action fields.

Due to the case study design, the complexity and particular nature of the case in question can

be assessed (Bell & Bryman, 2011: 59). Therefore, in the case of this research project, the idiographic approach applies, meaning that findings cannot be generalized to other cases (Bell & Bryman, 2011: 60). That said, while the findings stay specific to this particular research, the theories developed within this research can be generalized into a wider spectrum (Yin, 1989).

**Data collection**

Within the organization semi-structured interviews with open-ended questions were conducted. Leech (2002) described semi-structured interviews as a method that is allowing hypothesis testing and quantitative analysis at the same time. All interviews took place between April and May 2021. The interviews were conducted online and took around half an hour. The researcher is aware that online interviews create the risk that respondent are more likely to drop out of the exchange (Bell & Bryman, 2011: 659). However, it comes with the advantage of requiring a higher motivation of respondents and therefore replies are often more detailed than in face-to-face interviews (Bell & Bryman, 2011: 660). The interview partners were interviewed based on the interview guide to ensure comparability (see Appendix A). The interviews were structured with demographical questions first, to start a conversation with the interviewee (Leech, 2002). The sensitive questions were asked in the middle of the interview (Leech, 2002). To prevent response bias within the interview, the interview guide was not handed out in advance. In addition, all interviews were held in German, to prevent response bias due to language issues as all participants were German. The interviews were transcribed in German and all direct quotations in this report were translated to English. This approach may lead the author to make specific decisions on how to translate and analyze specific meanings into English, which can also create bias (Roulston, 2014).

**Data analysis**

The collected data was evaluated following Ruona´s four stages of data analysis (Ruona, 2005: 240). As a first step of data preparation (Ruona, 2005: 240), the interviews were transcribed and the identity of the interviewee was replaced by "interviewee". The interviews were transcribed using the tool "Amberscript". The tool was used to transcribe the recording to increase the research validity and reliability by eliminating the research interpretations during listening (Bell & Bryman, 2011). That said, all interview transcripts have been edited for clarity. Second, the researcher was getting familiar with the transcribed interviews (Ruona, 2005: 241). In the third step, the data was simplified in general codes (Ruona, 2005: 241). The study used open codes, where the data is broken down in categories and compared afterwards (Bell & Bryman, 2011: 578). The coding includes concept-driven categories, which are based on existing theories and data-driven categories to encounter relevant passages in the data (Schreier, 2014). To increase the validity of the coding, the researcher conducted two rounds of coding at two points of time (Schreier, 2014). The coding categories are described in Appendix B to provide a clear coding scheme for this research and to make the research replicable in other contexts. The aggregated and second-order themes were defined out of existing theory before the interviews. The sub categories were developed during the coding. The threshold creating a coding sub category was one interviewee, as the interview data was limited. The coding themes can be found in the coding tree (see figure 3) and are written in bold in the result section. As a fourth and last step the researcher generated meaning out of the data by interpreting the coding (Ruona, 2005: 241). In addition, all participants' definitions of social innovations in the interview were categorized in Rüede and Lurtz (2012) seven categories of social innovations. All mentioned examples of social innovations in urban freight transport were grouped the three dimensions: social transformative, product-based and process-based social innovations by Shier et al. (2019). The most overlapping answers were identified as relevant and integrated into the discussion

and conclusion of this paper.

**Research Ethics**

To ensure the interviewees feel comfortable during the interview, the interview subject was described first and respondents were reminded that their answers were confidential (Leech, 2002). In addition, the interviewee was assured anonymity within the research report. This was to prevent response bias, ensuring that candidates can speak candidly, truthfully and without fear of negative consequences. Following the recommendation of Leech (2002), the interviewer tried to seem proficient in the field, but less knowledgeable than the interviewee on the particular topic (Leech, 2002). This was to make sure that the respondent does not leave anything out based on assumption that the interviewer knows it already (Leech, 2002).

FIGURE 3

Coding Tree Interview
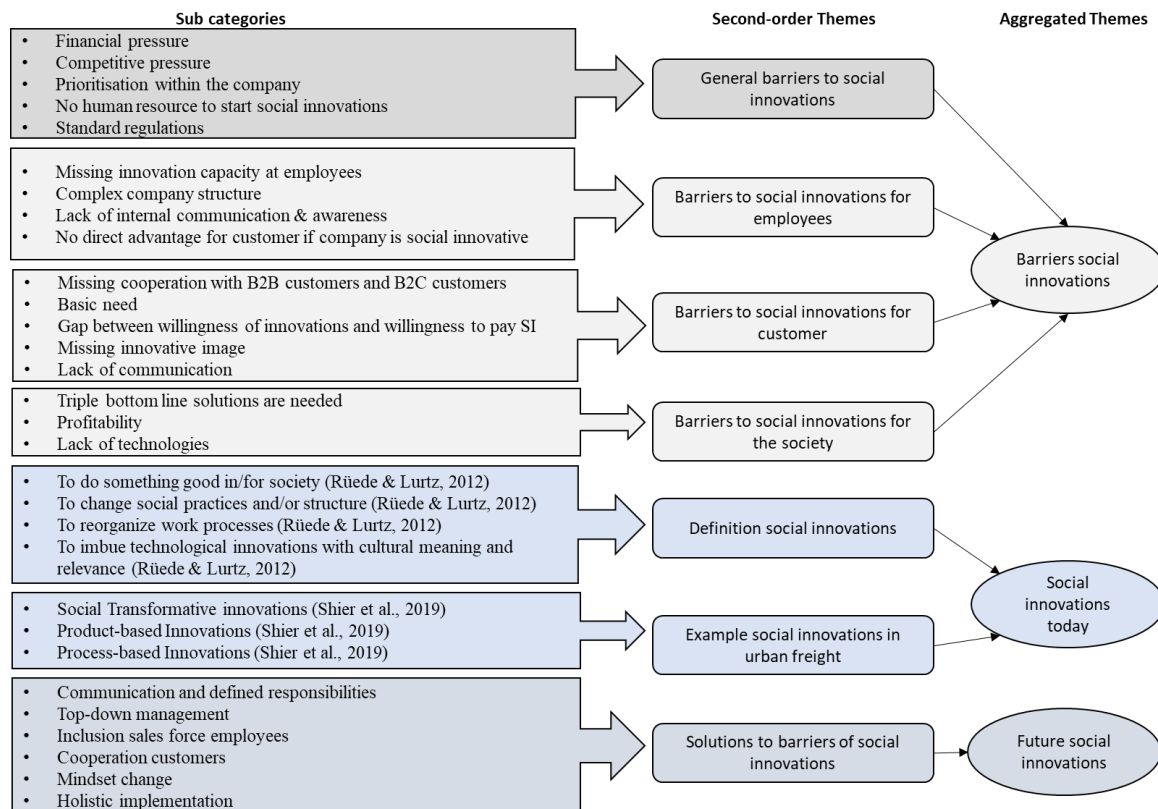
**RESULTS**

As part of the semi-structured interviews, all participants were asked for their respective definitions of social innovations, to get an overview of what they associate with social innovations. In addition, it was important to have the same understanding of social innovations with the participants. They differed between all participants. For some participants a social innovation had a social or environmental impact for the society as a whole or a social or environmental impact for employees. An innovation "*that people can use regardless of any hierarchical status, or regardless of the basic income, regardless of where they live. So that definitely all people have access to this kind of new innovations.*" (Interview 5) Other interviewees always connected innovations with digitalization. "*We are now connected digitally via video conference. I would actually consider that to be a social innovation as well. So, the way how we work together nowadays.*" (Interview 6) Therefore, social innovations are improving the work by making it more efficient as well as increasing the collaboration in the team. Another participant used parental leave as an example and defined social innovations as an innovation that creates immense benefits for a certain group of society. The definition of social innovations in a parcel delivering context was defined by one interviewee as "*if you take the example deliverers, when there are innovations, that make the life of the delivery person easier, that simplify his job, that improve his livelihood. That would be a social innovation for me, so always combined with something positive.*" (Interview 2)

As examples of social innovations, the interviewees mentioned different innovations. For example, one employee spoke referred to the Corporate Volunteering program, where employees can volunteer in a social or environmental project for one day a year and the company is paying the work hours. Another social innovation that was mentioned was a desk sharing initiative, where employees have no fixed desk anymore, which can foster exchange

with other employees. For delivering employees, cargo bikes were mentioned as a social innovation, as these are more secure and decrease conflicts regarding parking space. In addition, all new logistic centres at Hermes are built with showers and toilets for driving people. To summarize, all interview partners mentioned different examples of social innovations in urban freight transport, which were grouped in social transformative, product-based and process-based social innovations (see Appendix B).

Social innovations are important for the interviewees as they increase the motivation and loyalty of employees. In addition, social innovations can improve cooperation between employees and decrease work accidents and related health costs. Due to the Covid-19 pandemic, digital innovations like team rooms significantly increased the collaboration between the areas and the central department while employees worked from home. Social innovations could also give companies an advantage in attracting new potential employees. In addition, it is important for a company like Hermes Germany to compete with other market players in terms of social innovations. In the urban freight transport social innovations can decrease the urban traffic and minimize conflicts through second lane parking of delivering vehicles.

Furthermore, the interviewees were asked to identify all stakeholder for social innovations in urban freight transport. They identified NGOs, business partner, investors, competitors and the society as stakeholders. Additionally mentioned were employees, policy makers, the company management and customers as stakeholders that can have an influence on social innovations in urban freight transport.

**General barriers**

As part of this research project, the interviewer wanted to find out which barriers there are to implementing social innovations in urban freight. The interviewees identified the profitability

of social innovations as well as **price pressure** in the logistics sector as general barriers for social innovations. *"I think one topic is certainly profitability, because logistics is under extreme price pressure."* (Interview 2) The parcel delivering industry is identified as a low margin industry with highly **competitive pressure**. Social innovations do not directly influence the revenue or shipping quantity at first glance. *"Okay, we may not be able to increase efficiency with that. We cannot influence the volume of our shipments, but rather that there are other measurement factors that contribute to having added value. But for Hermes [social innovations] does not mean any change in terms of turnover directly."* (Interview 5) Another barrier is that social innovations compete at central decision boards in the company, with other more *"urgent"* topics and are often **not prioritized**. In addition to financial resources, Hermes also has **no human resources** who use the time to engage in social innovations. Another interviewee identified that **regulations** for social innovations within the market are missing. *"Maybe really standard regulations, that are missing today, which have to be improved, to succeed. If you have requirements that are the same for everyone in the market, then there is no reason to complain about it, then we all have to deal with it the same way."* (Interview 2)

**Barriers to social innovations for employees**

One interviewee identified as a major barrier for social innovations for employees at Hermes Germany the missing **innovation capacity** among "working" force employees due to missing interest for innovations. *"It's really just about doing work [..] "Roll your sleeves up, do it!" [..] And that's why I think a warehouse worker, a driver, even a dispatcher, they don't care."*(Interview 3)

Other interview partners identified a difference in willingness to change between employees as a reason for the lack of innovation capacity. The interviewees see this difference especially between young and old employees. Long employed worker have a lower willingness to

change than new employees. *"[..] it has to be a top-down approach, that the employees who is working for the company for a long time understand that this change is really important in order to really increase their satisfaction."*(Interview 4)

Another reason why the **company structure** at Hermes Germany makes it difficult to implement social innovations for employees, are the many business partners, who are delivering for Hermes, but which are separate companies. In addition, Hermes Germany is a subcompany of the Otto Group, which creates even more interfaces within a change process. *"There are just so many interfaces that you have to overcome, in order to get the okay to initiate something."*(Interview 6) The separation of the central department in Hamburg and the different logistic centres in Germany makes it more difficult to identify the need of social innovations for employees. Therefore, the interviewee identified a lack of **internal communication**. In general, the interviewees identified that there is no **direct advantage for customers**, if the company creates social innovations for employees, which could also be a barrier.

**Barriers to social innovations for customers**

In general, the interview partner saw different requirements of B2B and B2C customers[1] and identified a **missing cooperation with B2B and B2C customers** to identify the customer needs. Social innovations for customers can be just effective, when the company cooperates with its customers and their perspective is integrated.

Another identified barrier to implement social innovations for B2C customers was that parcel shipping is a **basic need**, which leads to low expectations for social innovations in urban freight transport. *"[..] we are not the festival you go to because 50 percent of the proceeds are*

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[1] Hermes has B2C (business to customer) and B2B (business to business) customers. A B2C customer would send the parcel to the receiver within a parcel shop and a B2B customer would use Hermes as the parcel delivering company to ship online orders to the receiver.

*donated to something."* (Interview 1) In addition, there is a gap for the customer between the **willingness for innovations and the willingness to pay for social innovations**.

The interviewees were convinced that Hermes Germany is **not seen** as an **innovative company** for customers, which means the customer does not expect social innovations at Hermes Germany. That emphasizes the existing **lack of communication** for social innovations.

**Barriers to social innovations for the society**

**Triple bottom line solutions** are needed to implement holistic innovations for the society, which consider economic, social and environmental factors. But they are not sufficiently developed yet. *"Sustainability would be an aspect, for example, where I would say okay, of course you're doing something for the company on the one hand, but also for society as a whole."* (Interview 5) For a parcel shipment company social innovation for the society always needs to be **profitable** but innovations for the society may not provide this directly. *"[..]it's a way of thinking that we need, which gives everyone advantages, in order to somehow anchor social innovations in the society as a whole."*(Interview 1)

In practice, companies like Hermes Germany also **lack the implementation of technologies**, to create holistic social innovations. All interviews showed that there are different barriers if we look at social innovations for employees, customers and the society.

**Future Social Innovations**

Within the interview, the participants were also asked for solutions to overcome these barriers of social innovations.

*Future social innovations for employees*

The participants saw **communication and defined responsibilities** for social innovations within the organization as a means to further implement social innovations for employees. A defined change manager could help employees to accept the change. Entrepreneurs within the company who spread social innovations but also support from the company management can be essential. Several interviewees identified a **top-down management** as necessary in the future, to set guidelines for social innovations, to show initiative and to create incentives for social innovations in other departments. Another factor would be a higher **inclusion of sales force employees** at the different locations.

*Future social innovations for customer*

To increase social innovations for customers, big social innovations are needed, which lead to a mindset change of the customer. When Hermes is seen as an innovative company, the customer would also be willing to pay more for the parcel. This can be done through the **direct involvement of customers** in the development of social innovations, to identify needed improvements. To increase customer satisfaction one interviewee identified data about the customer as an important mean to create individual solutions. This can create a higher customer awareness for sustainable products and increase the transparency. A **mindset change** can only be successful with greater communication, the interviewees also see social media as an important tool. Generally, interviewees were sceptic whether the business partner delivering model will work in the long-term to create social innovations in urban freight transport.

*Future social innovations for the society*

To create social innovations for the society, the interviewees identified a **holistic implementation of social innovations** as necessary. On the one hand companies have to put

higher prices on parcels to create social innovations and on the other hand the society has to be willing to pay this higher cost. Thus, future sustainable business models can be created. Hermes would have the capacity to set market standards for social innovations. The interviewees saw a collaboration with other companies and the federal environmental ministry as possible to create social innovations for the society. If Hermes would succeed with this approach, the company could become a reliable and sustainable delivering company, which is attractive for customers as well as employees.

How the findings can be linked to existing theories, will be discussed in the next section. In addition, potential recommendations to overcome existing barriers and to create future social innovations will be discussed.

**DISCUSSION**

One important question which still appears is: *"What are social innovations?"* The different definitions of social innovations within this research were categorized in Rüede & Lurtz (2012) social innovation definitions. During the interviews social innovations were defined by most of the employees in Rüede & Lurtz (2012) category *To do something good in/for society*. In addition, the definitions *To change social practices and/or structure*; *To reorganize work processes* and *To imbue technological innovations with cultural meaning and relevance* (Rüede & Lurtz, 2012) could be identified in the participants definitions. The definitions of social innovations were quite divers. This can create challenges through different understanding within a company but increases as well the creativity. The question, what a social innovation is, is still relevant and the research showed a general lack in awareness about social innovations. Existing research supports the finding that the definitions of social innovations are not sufficient discussed and studied yet (Rüede & Lurtz, 2012; Shier et al., 2019).

During the interview the participants were also asked for examples of social innovations. Most of the social innovations identified in the parcel delivering industry could be categorised in Shier et al. (2019) process-based and product-based innovations (see Appendix B). There were almost no social transformative innovations (Shier et al., 2012) mentioned. Process and product-based innovations are often less effective than social transformative innovations. These have an influence on direct processes and stakeholder but social transformative innovations would *do something good in/for society* (Rüede & Lurtz, 2012). Even though transformative innovations are more difficult to implement for organizations, they should be promoted in the future as these have a greater impact on the whole society.

**Challenge of financial profitability**

The research created an overarching picture that social innovations could be further integrated in urban freight transport. A main barrier for social innovations is the profitability. The parcel delivering industry is a low margin industry with highly competitive pressure. And social innovations have no break-even point, to measure when they get profitable. For companies it is important to measure the added value of an innovation, to justify investments. In addition, it is difficult for social innovations to compete with other innovations within the company. This could be the reason why ecological innovations are more often implemented in urban freight transport than social innovations as ecological innovations increase the efficiency of existing processes. In general, financial resources for innovations are limited but investments with a direct output can be better justified within a company. However, social innovations for employees and customers can become profitable, if they result in customer and employee satisfaction or attract new employees. Social innovations can have a huge impact on internal and external processes. One interviewee saw Hermes in the position to set market standards through increasing social innovations, which would create competitive advantages for the company. Other studies as well found out that sustainable innovations can bring competitive advantages (MacGregor & Fontrodona, 2011). Gasperin et al. (2012) see the impact of social innovations in creating social, cultural and economic value. Social innovations can have a great impact, but these have to be measured with different factors than just financial profitability.

**Challenge of innovation capacity**

In general, social innovations always have to be supported by the company management. A top-down approach was identified by the interviewees as a way to successfully integrate social innovations. Contradicting these findings, Shier et al. (2019) state that a top-down approach hinders social innovations within a company and instead the inclusion of staff in

decision making can promote social innovations. It should be mentioned that the study of Shier et al. (2019) looked at human service nonprofits. The successful leadership method to include social innovations in a company could be different in nonprofit and for-profit companies. Future research could look at different effective leadership styles in nonprofits and for-profit companies to integrate social innovations. The specific researched case Hermes Germany is a company with many long serving employees. Topics like sustainability and cultural change are still developing what could be a reason why a top-down approach as well as standard market regulations are identified within the interviews. There could be also different findings in companies with a general social aim and companies without a social aim like Hermes Germany.

There is also a different innovation capacity between employees. Often old employees are less convinced to change existing processes, while young employees are more open to change. This challenge is also identified in research by Christmann (2020). By defining responsibilities within the company and electing change agents for social innovations, some barriers for social innovations can be overcome. The way of communication and inclusion of all locations is essential in this approach. Shier et al. (2019) found out that a learning culture within the company is key for social innovations. In addition, a collaboration between different groups of employees could create innovative ideas (Shier et al., 2019). In organizations with several different locations, workshops which include different points of view could promote social innovations and create awareness between employees.

**Challenge of identifying customer needs**

Not only internal but also external communication is important to develop an innovative company image for the customer. If customers are not aware of social innovations, they will always choose the cheapest parcel deliverer. A challenge is to identify which social innovations are needed to increase customer satisfaction and to create an innovative company

image. Therefore, B2B and B2C customers could be more involved to define together, what is needed to increase their satisfaction. Collected data about the customer could also play a role, to better understand the user behavior.

**Challenge of a mindset change**

There is gap between the willingness for innovations and the willingness to pay for innovations regarding B2C customers. But a mindset change can be forwarded through creating awareness of social innovations. A shared mission can increase social innovations within an organization (Shier et al., 2019). This shared mission is applicable for internal and external stakeholders to increase social innovations. Social media can play a big role to communicate social innovations and to help a company to become an innovative player. By increasing the parcel price on the one hand and increasing the willingness to pay for social innovations on the other hand, a mindset change can be promoted.

**Challenge of holistic social innovations**

Social innovations are part of sustainable innovations and have to go hand in hand with ecological innovations. Therefore, technologies have to be created that support the triple bottom line approach as these social transformative innovations are currently missing. Parcel delivery is part of urban freight transport and is not just affecting their direct stakeholders but is also creating negative consequences for a whole society (Dolati Neghabadi et al., 2019).

The ecosystem approach can help to understand new perspectives of different stakeholders (Domanski et al., 2020). In this research a possible cooperation with business partners, competitors, customers and policy makers is identified. This could create a holistic environment, that is promoting social innovations (Shier et al.,2019). Existing studies emphasize the necessity of social innovations occurring simultaneous in different areas (Domanski et al., 2020). The identified different stakeholder in the urban freight industry can

be challenging due to no shared vision of social innovations but these different perspectives can also help to develop different concepts of social innovations.

## CONCLUSION

The study supported the findings in research, that social innovations in urban freight are rarely addressed. There are different barriers in the field of urban freight transport to integrate social innovations for employees, customers and the society. The main challenges are the profitability of social innovations and the missing innovation capacity especially for employees, who are fixed in their routines. On the customer side the main challenge is the missing knowledge within organizations about how to increase customer satisfaction and the missing willingness of customer to pay for social innovations. Barriers to implement social innovations for the society are missing holistic solutions, which are social, ecological and profitable.

### Recommendations for future social innovations

A company should integrate different measurement factors for social innovations, which are not only based on financial profitability but on social and cultural impacts. In addition, social innovations should be supported by the company management and responsible change agents should communicate social innovations to employees. A learning culture in the organization, including workshops with different groups of employees can promote social innovations and increase the innovation capacity in the organization. To increase social innovations for B2B and B2C customers, they have to be directly involved in the development processes. In addition, it is important for an organization to be seen as an innovative company from all stakeholders. This awareness can be only reached with successful communication, that is promoting a mindset change of customers. To create social innovations for the society, a holistic approach and environment is necessary. Innovative companies can set market standards for social innovations, which create competitive advantages.

**Limitations and future research**

The study has some limitations, as the findings within one case study cannot be generalized. In addition, the analysis of interview data is never really complete as including other researchers in the study could lead to other interpretations of the data. Due to time limit only a certain number of interviews could be conducted within one organization. Future research could analyze different stakeholders within the field of social innovations in urban freight transport. As the study only analyzed one case study in Germany, the focus is on the national parcel delivery industry which could differ in other countries. Despite, these limitations, the research can contribute to the knowledge gap of social innovations in urban freight transport and give new insights.

While the findings stay specific for the researched case, the theory developed can be integrated into a wider context. Identifying barriers for social innovations and giving recommendations for future social innovations and can help different players in urban freight transport, to further integrate social innovations. Future studies could look specifically at barriers for social entrepreneurs entering the urban freight industry. This study only focuses on the development and implementation phase of social innovations and future research could look at established social innovations. In addition, successful strategies for social innovations in for-profit and nonprofit companies could be compared. A transdisciplinary research approach could study the ecosystem of social innovations and integrate different stakeholders like policy makers, customers, NGOs and companies. The ecosystem approach can be important to understand how social innovations are adopted to other contexts.

Urban freight transport is responsible for a decrease of living conditions and environmental pollution in urban areas. Therefore, the increase of urban freight transport within city logistics creates a need to simultaneously face the social, environmental and economic dimensions of sustainability to create a sustainable development towards a triple bottom line approach.

Ecological innovations, like electronic vehicles, are already sufficiently studied in research as well as integrated in the market. But to solve negative effects of urban freight, eco innovations and social innovations have to be combined. Big companies have the possibility to change existing industry standards but therefore existing challenges have to be overcome.

**Social innovation outlook**

Social innovation research in industries with a large social impact, should be further developed. The research field of social innovations is today quite narrowed on non-profit companies or business models with a direct social aim. Also, companies with no direct social aim can play can essential role in social innovations development. This research helps to identify existing barriers for social innovations for one case in a specific industry. Future social innovation concepts should aim to have a broad impact on the society and develop from product-based and process-based to social transformative innovations. Also, if social and sustainable innovations research are defined as two different research streams, social innovation research can contribute to sustainable innovation research. Just a combination of social and ecological innovations can create sustainable innovations and can deliver greater social and environmental sustainability within different industries.

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**Interview guide**

Thank you for participating at my research. As stated in the interview consent, which I have send you before the interview, I will record the interview. I hope you agree with that. This study focuses on social innovations in urban freight transport and wants generate deep knowledge within one organization. All interviews will take place at Hermes and will be anonymized, if you have further questions, you can ask them now or after the interview.

1. In which department of the company Hermes Germany are you working?

2. Is your department connected to innovations?

3. What are social innovations in your opinion? I define social innovations within this research as innovations that aim to have a broader impact on the social system and/or experiences of a vulnerable social group as a whole.

4. Which kind of social innovations do you see as important in urban freight transport? (social innovations can be find in different areas: Minimizing the accident risk, decreasing health effects, job satisfaction, customer satisfaction and contribution of new jobs)

5. Who do you think can be impacted by social innovations in urban freight transport?

6. Who is creating social innovations for you?

7. Why do you think are social innovations not sufficient integrated yet?

8. What barriers are there for Hermes Germany to integrate social innovations for employees? How do you think these can be solved?

9. What barriers are there for Hermes Germany to integrate social innovations for customers? How do you think these can be solved?

10. What barriers are there for Hermes Germany to integrate social innovations for the

society as a whole? How do you think these can be solved?

11. Where in the urban freight transport could social innovations in the future be

    integrated?

Thank you for participating at the study. If you want to have further information about the

results of this study, we can stay in contact.

**Sub categories Coding**

TABLE B1

Theme Examples Social Innovation

| Social Transformative Innovations | Product-based Innovations | Process-based Innovations |
|---|---|---|
| Corporate Volunteering (Employees get one day per year paid, where they can volunteer in an environmental or social project) | Auditing at business partner sites | Fundraising management (social project are supported as long-term initatives) |
| PaketFuxx (project, where people can collect parcels for their neighbors and get a small amount for it or can donate it directly to environmental projects (Hermes, 2021c)) | Cargo bikes (less emissions, less traffic, less noise, more secure) | WS Human Right Due Diligence |
| | Electronic vehicles (good for the climate what makes it good for people) | Digital tour planning |
| | forklift that is starting slow modus after accident (work safety) | Digital loading zones |
| | Free electric vehicle charging at work, also for private cars | Flexible work hours |

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|---|---|---|
| | Showers and toilets for driving people (often they have no other possibility on the highway) | Home Office |
| | company kindergarten | Parental Leave |
| | Social insurance | Live Cooking - BBQ in the canteen to socialize with other employees |
| | Digital cooperation with areas through online meetings | Desk sharing |
| | height-adjustable caljan | Payback system for sustainable products/sustainable stores |
| | height-adjustable desks | competence teams- projects use expertise from different departments |

TABLE B2

Theme General Barriers to social innovations

| Dimension | Representative data | Description |
|---|---|---|
| A. Financial pressure | *"[..] there is great financial pressure and social innovations can be burdened with additional costs."* (Interview 2)<br><br>*"Okay, we may not be able to increase efficiency with that. We cannot influence the volume of our shipments, but rather that there are other measurement factors that contribute to having added value. But for Hermes does not mean any change in terms of turnover directly."* (Interview 5) | The budget is often not spent for social innovations as there is a high financial pressure on the market of parcel delivery. |
| B. Competitive pressure | *"We are an extremely low-margin area with extremely high competitive pressure"* (Interview 6) | The logistic sector has a high competitive pressure, what makes it difficult for social innovations if these are not implemented by all actors. |
| C. Prioritisation within the company | *"And now, especially with social innovations, people say that innovation already said it, that's something really new, you always have to weigh up that very carefully. Is that really the top priority we have right now? And what is perhaps feasible with smaller* | The company has different internal priorities than social innovations, therefore these social innovations can not compete with other innovations within management decisions. |

| | | |
|---|---|---|
| | *resources?"* (Interview 6) | |
| D. No responsibilities within the company to start social innovations | *"And I think when you have a couple of first movers who somehow say: "Yes, come on, let's do this now" and pull a few colleagues along [...]."* (Interview 1)<br><br>*"And it is again the financial issue that you [...] need employees who deal with it in order to create social innovations."* (Interview 2) | There is a lack of responsible employees for social innovations. |
| E. Standard regulations | *"Maybe really standard regulations, that are missing today, which have to be improved, to succeed. If you have requirements that are the same for everyone in the market, then there is no reason to complain about it, then we all have to deal with it the same way."* (Interview 2) | Standard regulations on the market are missing to implement social innovations. |

Theme Barriers to social innovations for employees

| Dimension | Representative data | Description |
|---|---|---|
| A. Missing innovation capacity at employees | *"That's why I think that's the innovative strength, if at all only in the head office, and sometimes I think that there is a lack of cooperation with the working force."* (Interview 3)<br><br>*"there is a totally different understanding of employee satisfaction depending on the group of employees, the satisfaction of older employees is very different from that of a younger employee, e.g. in the warehouse we have many employees who have been working for 50 years."* (Interview 4) | The company is divided in the central department (Hamburg) and several sub departments. In the sub departments and logistic centers, the innovation capacity is low due to education and status of employees. In addition old employees are less willing to change. |
| B. Complex company structure | *"If you expand the circle and also include general contractors, then of course this is a model that does not allow social innovations so easily because you are not allowed to intervene so much."* (Interview 2) | Social innovations for employees are not implemented due to complicated company structure. Hermes Germany has several business partners who deliver for them, where social innovations for employees cannot be implemented. |
| D. Lack of internal communication & awareness | *"I think these are the two main reasons, either not knowing or no awareness of the situation or this* | Internal communication is lacking to create awareness of social innovations. Especially due to the |

|  | principle: "This is how we have always done it." (Interview 1)<br><br>"[…]the employees who have been with Hermes for a long time have to really get this added value of digitization and change explained with quantitative KPIs." (Interview 4) | company size. |
|---|---|---|
| E. No direct advantage for customer if company is social innovative | "It can't just be our audit system, because in the end the customer, who only looks at the price says "I don't care whether the parcel deliverer gets 10 or 15 or 7 euros." (Interview 1) | If Hermes creates social innovations for employees, the customer is often not aware of that and has no direct advantages. |

TABLE B4

Theme Barriers to social innovations for customers

| Dimension | Representative data | Description |
|---|---|---|
| A. Missing cooperation with B2B customers and B2C customers | *"And I think at Hermes we should involve the customers more and not only think from our point of view as customers in our private lives, but also really invite these customers to us [...]"* (Interview 4)<br><br>*"[...] And now I come to the [B2B] customers. What if you discuss such innovations together?"* (Interview 3) | B2C and B2B customer should be involved to create social innovations for customers. |
| B. Basic need | *"[..] we are not the festival you go to because 50 percent of the proceeds are donated to something."* (Interview 1) | Parcel delivering is a basic need of the customers, which they do not connect with social innovations |
| C. Gap between willingness of innovations and willingness to pay SI | *"Things are asked for, but you are actually not ready to pay for them."* (Interview 2) | There is a gap between the willingness for social innovations (which is high) and willingness to pay for social innovations (which is often low). |
| D. Missing innovative image | *I think something big is needed. [..] That the customer connects Hermes with innovations and see us as an innovative company."* (Interview 1) | Customers are connecting the company not with innovations. Therefore, they have low or no expectations. |

| | | |
|---|---|---|
| E. Lack of communication | *„[Hermes] really need a big story, that really changes something, that stays in the customers minds and not just small things."* (Interview 1)<br><br>*"[Customer view]Aha, look, even when choosing my parcel service provider, I can check what they are doing socially and that could also be a criterion for me with whom I sent my parcels."* (Interview 1) | Lack of communication between Hermes and customer. Customer is not aware about social innovations. |

TABLE B5

Theme Barriers to social innovations for the society

| Dimension | Representative data | Description |
|---|---|---|
| A. Triple bottom line solutions are needed | *"Sustainability would be an aspect, for example, where I would say okay, of course you're doing something for the company on the one hand, but somewhere also for society as a whole."* (Interview 5) | There is a need for triple bottom line solutions, which is often challenging for companies (social, economic & environmental) |
| B. Profitability | *"Yes, somehow you always come back to the profitability"* (Interview 2) | Social innovations for the society are often very expensive and there is no direct profitability for the company, if they create them. |
| C. Lack of technologies | *"If you fix it to the example, then you have the barrier that first of all technology has to be available that is not even existing today, it has to be developed first."* (Interview 2) | Social innovations for societies require a huge change and companies often struggle to implement technologies for this. |

TABLE B6

Theme Solutions to barriers of social innovations

| Dimension | Representative data | Description |
|---|---|---|
| A. Communication and defined responsibilities | *„Or you have someone like a internal change manager, which is picking up the people, which is explaining the consequences and the improvements. At the end this is as well impacting very strong the culture.“* (Interview 7) | Communication and responsibilities can create a higher awareness and acceptance of social innovations within the company. |
| B. Top-down management | *"So it has to be a top-down approach so that the employees who have been with the company for a long time understand that this change is really important in order to really increase their satisfaction."* (Interview 4) | A top-down management is identified to develop and implement social innovations in the organization. |
| C. Inclusion sales force employees | *„[..]Maybe not only for the central department: we open a third bistro. And instead check outside in the areas: What do we need at the locations Rendsburg?"* (Interview 3) | Sales force employees shall be included in the development and implementation of social innovations. |
| D. Direct involvement of customers | *„And I think we as Hermes should further integrate the customer and not just our private view as a customer, instead really invite the customer and also involve them in the process."* (Interview 4) | Customers shall be included in the development and implementation of social innovations. |
| E. Mindset change | *„I see social innovations of the future as the way how we communicate and how we design company processes, so that employees and customers see the* | Customers should see Hermes as an innovative company. |

| | | |
|---|---|---|
| | *company creating these values."* (Interview 4) | |
| F. Holistic implementation | *"Sustainability would be an aspect, for example, where I would say okay, of course you're doing something for the company on the one hand, but also for society as a whole. So I think that's a very good example where you could say that it definitely has effects on the outside."* (Interview 5) | All solutions to the before mentioned barriers, to implement social innovations for the society as a whole. |