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The impact of sustainability on performance of Finnish and Swedish crowdshipping companies

Sivikhina Alena – K9022

Bachelor's thesis
April 2021
School of Technology
Degree Program in International Logistics

Jyväskylän ammattikorkeakoulu
JAMK University of Applied Sciences

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Description

Author(s)	Type of publication	Date
Sivikhina Alena	Bachelor's thesis	April 2021
		Language of publication: English
	Number of pages 101	Permission for web publication:

Title of publication

The impact of sustainability on performance of Finnish and Swedish crowd-shipping companies

Degree program

International Logistics

Supervisor(s)

Kervola Henri

Assigned by

JAMK University of Applied Science

Abstract

Last-mile delivery is getting more and more attention nowadays as consumers evaluate the entire supply chain based on the last-mile delivery performance. Since the first wave of coronavirus infection began e-commerce market has expanded rapidly, therefore, to succeed in a changed market conditions companies have to find new ways how to make deliveries faster, cheaper, and more sustainable. One of the solutions is to outsource the last stage of the supply chain to ordinary people which is called crowd-shipping. Sustainability, in its turn, helps to build a strong and versitile supply chain that responds quickly to the recent expansion of e-commerce market and its changing conditions, and brings major benefits for all parties involved.

The data has been collected using qualitative method to examine the role sustainability plays in Swedish and Finnish crowd-shipping companies and how those companies manage sustainability throughout their supply chains. Based on the literature review the data collected in regard to several crowd-shipping companies in Finland and Sweden has been analyzed and the impact sustainability has on supply chain performance of studied companies has been identified.

The results have been generalizabled for the Nordic crowd-shipping industry since all existing companies in Finland and Sweden were studied and the pattern of growing attention to sustainability in this industry has been found. The conslusion was that crowd-shipping is a relatively new concept and there is yet many pitfalls that have to be overcome, however, it is a promising business model that will help to improve the overall performance of supply chains.

Keywords/tags (subjects)

Crowd-shipping, sustainability, last-mile delivery, e-commerce, SDGs, crowdsourcing.

Miscellaneous (Confidential information)

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1 Introduction

Nowadays, environmental, and social issues have become a great concern among the population of our planet. Since our global resources deplete, people suffer from different diseases, horrible living or work conditions, more and more consumers start to show interest in the environment and express their voices through buying sustainable products. Based on that, consumers expect companies to care about environmental and social issues as well as they do. Companies, in their turn, are now under a great pressure and they are facing new restrictions and regulations on the material they use, the products they produce, the safety of their facilities and this list can go on and on. However, despite the obstacles to be overcome in the beginning this new trend of moving towards sustainability will bring many benefits as for the company and its customers, and for the environment.

This topic closely relates to logistics, as far as, it has gained special importance over the last few years. People order goods and services online to save time and time in our fast-moving world is good as gold. Easy access to online delivery platforms, a variety of options, and many discounts are the factors that make it attractive to most consumers. Logistics is all about giving your customer what they want and when they want it, and nothing is so important to the customer than the last mile of the delivery process. Usually, customers evaluate the entire logistics process based on the last mile performance, thus, if order is delivered on time, to the right place and without damage then company create a customer for a life. Last mile is getting more and more attention these days, for instance, Amazon which was outsourcing last mile delivery to UPS, now is taking the control of their deliveries. This results in easier communication with the customer and allows Amazon to quickly respond if any problem happens during the transportation. To succeed in the last stage of the delivery process companies must be effective in meeting customers' expectations, be efficient in controlling costs and communicate throughout the delivery process. Continuous improvement of these three functions can create return customers. However, the more people order the more waste they generate, the more deliveries are made, and more workforce are needed to fulfill the needs. To stay competitive on the market,

companies have to find new ways how to make deliveries faster, cheaper, and more sustainable. One of the solutions is to partly or fully outsource the last stage of the supply chain to ordinary people. This is called crowd-shipping when ordinary people are involved directly in the delivery process.

E-commerce industry has expanded since the first wave of coronavirus infection began and it is predicted that this shift to buying goods and food online will be permanent. People who did not buy products online because they were concerned about safety of a payment system and quality of the product now, due to lockdown and restrictions, discovered how ordering products online is easy and convenient. Increase of e-commerce leads to increase in deliveries, thus, logistics has to overcome new challenges, especially, those companies who are not prepared for such expansion of the e-commerce market can lose their business but those who adapt to the new market conditions rapidly will benefit. Sustainability can create a strong, versatile supply chain that responds to the fast-changing market conditions and bring major benefits for all parties involved in supply chain process.

In this research several Finnish and Swedish companies were studied to determine the role of sustainability in crowd-shipping companies in Finland and Sweden. The objective of this thesis is to determine the impact of sustainability on supply chain performance and marketing of Finnish and Swedish crowd-shipping companies. This thesis intends to answer following research questions:

1) Which crowd-shipping companies operates in Finland and Sweden?
2) How do these companies take care of ecological and social sustainability?
3) What is the role of sustainability in their marketing?

In the Theory part of the thesis, sustainability and its three pillars will be defined and described. The next part, research methods, will focus on qualitative research. The final part will highlight the results, and a discussion will be presented.

2 Theory

2.1 Sustainability

We use the word “sustainability” in almost every aspect of our life: environmental, economic, social, political, cultural, and so on. And the definition of it is broad. However, the essence remains the same. So, what is “Sustainability”? According to the Cambridge dictionary, “sustainable” is defined as causing little or no damage to the environment and therefore able to continue for a long time. It is important to understand that sustainability is a long-term oriented process and humanity has already started to pay attention to this problem.

In the 19th century with the beginning of the industrial revolution, people realized that the industry was developing too fast needing more global resources and workforce. This caused many environmental, social, and economic issues. Actions needed to be taken and, in 1983, the World Commission on Environment and Development, also known as the “Brundtland Commission”, was formed. They believed that by finding more sustainable ways for economic growth humanity will not just survive but prosper (The World Commission on Environment and Development, 1987, p. 11). In 1987, they published the final report called “Our Common Future” where the official definition for sustainable development was given. The definition is as follows: “Sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs” (The World Commission on Environment and Development, 1987, p. 41). Indeed, for humanity to survive we need to put back the same amount of resources that we consume, otherwise, we will be threatened with extinction. The amount of renewable resources on our planet is exceeded by over 60% (Global Footprint Network, 2016, p. 10).

However, sustainability is not only about the environment. It is also about achieving and maintaining a strong, healthy society (The World Commission on Environment and Development, 1987, p. 7). To do so, companies have to rethink the way they do business. For instance, removing child labor out of their supply chains, providing good working conditions, and set the goals that will help implement sustainability as a core concept of any business. In figure 1 we can see that sustainability is about finding a balance between the so-called triple bottom line of people, planet, and profit or as it is formally called three pillars of sustainability: society, environment, and economy. Without at least one of these components it is impossible to achieve sustainability.

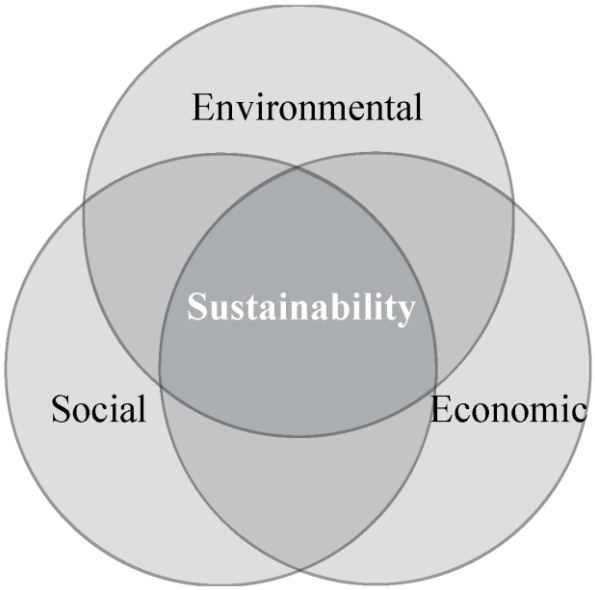


Figure 1. Three pillars of sustainabilty.

The practices show that eco-friendly products are more expensive than those that harm the planet the most. Customers are not willing to pay a high price for the same product that they can have but for a cheaper price. Due to this even though there are many sustainable products on the market the business activity still has a negative impact on the planet. Sometimes it is very hard to tie up the activity that harms the environment to a particular business, therefore, their costs stay external to business' accounting (Chouinard Yvon). Companies can make the tables turn by creating not just sustainable products but also operating healthy and sustainable supply chains.

Eliminating wastes and unnecessary processes will contribute to cost reduction and improvement of supply chain operations in general.

In 2015 the international community set out the sustainable development goals (SDGs) that have to be met by 2030. Through extermination of poverty, finding more sustainable solutions, and protection of human health and human rights countries will carry out the SDGs and positively contribute to sustainable development (European Commission). The EU aims to implement SDGs in all their policies by 2030 and encourage EU countries to do the same. To show their commitment to the issue solving the EU is now moving towards a circular economy, low-carbon, climate-neutral, and resource efficiency, thereby, increasing social, economic, and environmental sustainability (European Commission). The international community exemplified 17 sustainable development goals regarding global challenges we have to deal with and aspects of sustainable development that have to be undertaken. Those are as follows: no poverty, zero hunger, good health and well-being, quality education, gender equality, clean water and sanitation, affordable and clean energy, good jobs and economic growth, innovation and infrastructure, reduced inequalities, sustainable cities and communities, responsible consumption, climate action, life below water, life on land, partnership for the goals and peace, justice and strong institution. Some of them will be precisely studied and explained in the next chapters.

Figure 2. 17 Sustainable Development Goals.

The 2030 Agenda for sustainable development states that sport is a crucial facilitator of sustainable development. Tokyo Games 2020 aims to be the most sustainable Games and, moreover, they targeted to deliver sustainable products and services not only for the period of Games but for the long run. (Tokyo 2020). One of Japan's long-term oriented projects is moving towards a zero-emission state by 2030 as part of the global actions in order to slow down climate change (UN). They presented a tool to ensure sustainability throughout the whole supply chain called the Tokyo 2020 Sustainable Sourcing Code. It defines methods by which products and services should be produced as well as criteria for the sourcing of it. Implementation of this Code will help Japan to install sustainable practices in society, therefore, achieving public recognition of the importance of sustainability (Tokyo 2020). First of all, Tokyo 2020 will focus on positive contributions to climate change through the reduction of CO2, energy savings, and the use of renewable energy. All CO2 emissions will be compensated through the carbon offset programs. By using new permanent venues Tokyo 2020 will guarantee high environmental performances. The application of a resource management system will eliminate wastes and control them throughout the entire supply chain. Tokyo 2020 claims that 99% of the generated waste will be recycled from the venue construction. Reduce, reuse, recycle approach is carried out during the Games. Effective use of water, heat management implementation, and the development of an ecological network are the main activities that were designed in order to form an eco-friendly city. To achieve social sustainability during the Games Tokyo 2020 will operate in accordance with the UN's Guiding Principles on Business and Human Rights (Tokyo 2020). Also, free corruption environment will be maintained. Engagement with stakeholders and people involved aims to provide equal opportunities for everyone and contribute to creating social equality.

2.2 Social Sustainability

The social pillar of sustainability explicates the importance of human health and human rights, fair work conditions, equal opportunities, and access to the labor market (European Commission, 2017). Table below presents the set of sustainable development goals that intend to solve the addressed social issues. In developing countries,

3th SDG	• Aims to protect healthy lives and contribute to well-being by 2030.
4th SDG	• Aims to ensure comprehensive and equitable lifelong quality education.
5th SDG	• Promotes geneder equality and the empowering women and girls.
6th SDG	• Aims to secure access to water and sanitation.
10th SDG	• Aims to diminish inequalities withing and among countries.

Table 1. SDGs that address social issues.

poverty and inequality became normal practice. Those who cannot afford to get a higher education often find themselves in low-paid jobs living with a low standard of life. Their rights are usually violated by more powerful and influential people. This, in turn, leads to a scenario where people have no other choice but to accept offered low-paid jobs. In most cases, it is hazardous work endangering human health. And the gap between poor and rich grows continuously. In 2002 Dernbach has concluded that poor people in developed and developing countries tend to be exposed to the worst environmental conditions. To ensure that future generations will have enough resources to meet their needs environmental degradation and poverty reduction actions must be taken immediately. Our world is changing incredibly fast and for governments and companies to benefit from the upcoming opportunities they have to invest in people, strengthens their skills (Guy Ryder, 2020). On the one hand, not well educated or skilled people are a waste of human resources. On the other hand, not educated people make up a cheap labor force sector that is in high demand now. By trying to save money companies and governments are always in need of people willing to work for pennies.

Nevertheless, as it says in the 4th SDG ensuring comprehensive and equitable lifelong quality education must be achieved by 2030. Educated people are the main drivers of the development process and socio-economic upward mobility (UN). Thus, accessible education has to be a priority in policy and practice. In Sub-Saharan Africa, less than one-half of schools cannot provide the basic resources for the students. Due to poor infrastructure electricity, drinking water, and the Internet are not available there (UN). Education is hardly accessible in such conditions. Education helps to create a socially responsible and peaceful society where inequalities are reduced to the mini-

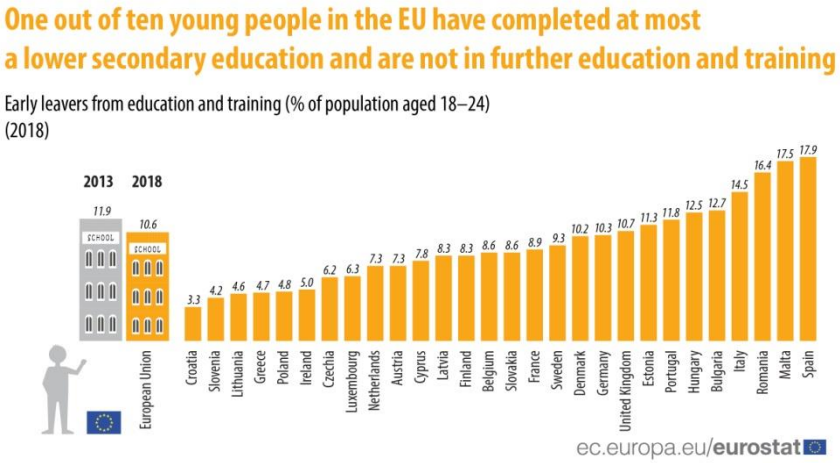


Figure 3. Early leavers from education and training in 2018 (% of population aged 18-24).

mum (UN). However, due to inequality in incomes, family problems, or socio-economic situation some young people leave school early (Europen Commision). In the graph above published by Eurostat, the statistics on early leavers from education and training in 2018 is presented. Italy, Romania, and Spain scored the highest rate with the percentage of early leavers above 15%. The COVID-19 made the situation even worse. About 1.6 billion children and youth were out of school by April 2020 overturning progress made on education (UN). Remote learning which became an innovation still remains inaccessible for at least 500 million students (UN). Europe has already included education objectives in the Europe 2020 strategy for growth and jobs. Those objectives aim at reducing the early school leaving rates below 10% and ensuring the completion of higher education by at least 40% of 30-34-year-old people (European Commission).

COVID-19 influenced not only the educational process but the health and well-being of people as well. Some essential health services were disturbed or suspended during the pandemic and if Europe wants to achieve the 3rd SDG by 2030 acceleration of growth in the provision and use of essential services must be done (UN). The 3rd SDG aims to protect healthy lives and contribute to well-being (UN). Yet poor countries do not have enough medical suppliers, facilities, and health care workers to provide essential health services for the population (UN). More than 40% of all countries have less than 10 medical doctors per 10 000 people (UN). This number of workers is clearly not enough in order to provide a high health service level for everyone. In 2017 World Health Organization revealed the data on maternal mortality; approximately 295 000 women died during pregnancy and following childbirth and 94% of these deaths occurred in low-resource settings. All these maternal deaths can be prevented if high-quality care is accessible which not the case in poor countries (WHO). Europe intends to fight challenges which third countries' health systems are facing through such policies as the European development policy, the European neighborhood policy, and the Enlargement policy (European Commission).

Furthermore, COVID-19 showed that access to clean water and sanitation is essential for stopping the spread of diseases and preventing infections (UN). Meanwhile, for 3 billion people simple hand hygiene is not accessible as declared United Nations. In 2017, the World Health Organization revealed that 785 million people do not have access to basic drinking water. According to the 6th sustainable development goal set by the international community governments of all countries have to secure access to water and sanitation for all. Furthermore, access to sanitation and water is one of the human rights; however, approximately 1 000 children die every day due to water-related diseases (UN). Investing in water will eventually help to avoid such diseases as cholera, hepatitis A, diarrhea, and many others and contribute to the cost-efficiency (WHO). Also, by improving sanitation, hygiene, and water safety countries will contribute to the reduction of poverty, education, and food security (UN). Countries should manage water resources more responsibly, thereby; have a positive impact on climate change, water ecosystems, and their biodiversity (UN). Pursuing the intended 6th SDG proper access to safe and affordable water must be achieved by 2030 (UN).

Providing equal opportunities and treating employees fairly are the practices that help to build a socially responsible society. The idea is no matter what age, religion, race, or gender employees are they have to have equal opportunities to apply for the job they are interested in, be promoted, and be trained. No employee has to be treated less favorably than others based on their sexual, marital, or racial grounds (Durham Jeff). The 5th SDG promotes gender equality and the empowering of women and girls (UN). In order to achieve a healthy and peaceful society, the different forms of gender violence have to be ended. Quality health and education, economic resources, and participation in political life have to be equally accessible for women and men (UN). Although discrimination of women endures through laws and policies, gender-based stereotypes, and social norms, those has to be ended to ensure productivity, economic growth, and sustainable development (UN). Women and girls represent half of the world population and are being highly valued in the fight against COVID-19 as 70% of health and social workers are represented by women (UN). Yet 35% of women in the age of 15-49 years have been exposed to physical, psychological, or sexual violence and during the pandemic, this number increased by 30% (UN). It shows that the protection of women and girls still remains an issue and

Figure 4. COVID-19 implications.

improvements need to be done. According to the United Nations article "Goal 5: Achieve gender equality and empower all women and girls" 49 countries out of 143 still do not ensure the protection of women from violence. The 5th sustainable development goal sets out the targets to eliminate and end all forms of violence and discrimination against women. The Commission on the Status of Women plays an important role in the solving of this issue and by promoting gender equality and

empowering women it aims to achieve a socially responsible society (UN). Through the social protection policies and promotion of gender equality, the EU will try to empower women and girls and, therefore, boost the development process in all areas (UN). Companies, in its turn, should learn how to manage diversity because so many people are working together in order to achieve a common goal and each of them has a different experience, backgrounds, and skills contributing to the company on a different level. Hiring people that are right for the job regardless of their race and sex is the only way how the system should work. Also, if providing learning opportunities, they have to be available for all employees. In order to run a socially sustainable business companies have to take into account all factors mentioned above.

Social sustainability cannot be achieved if such practice as child labor occurs in supply chains. Families that have a minimum wage rate, need children to start earning money as soon as possible, so later they can sustain elderly parents. In the graph below can be seen the pattern that over the 12 years the child labour has been going down, however, it is far from ideal. According to the survey conducted by ILO "Mak-

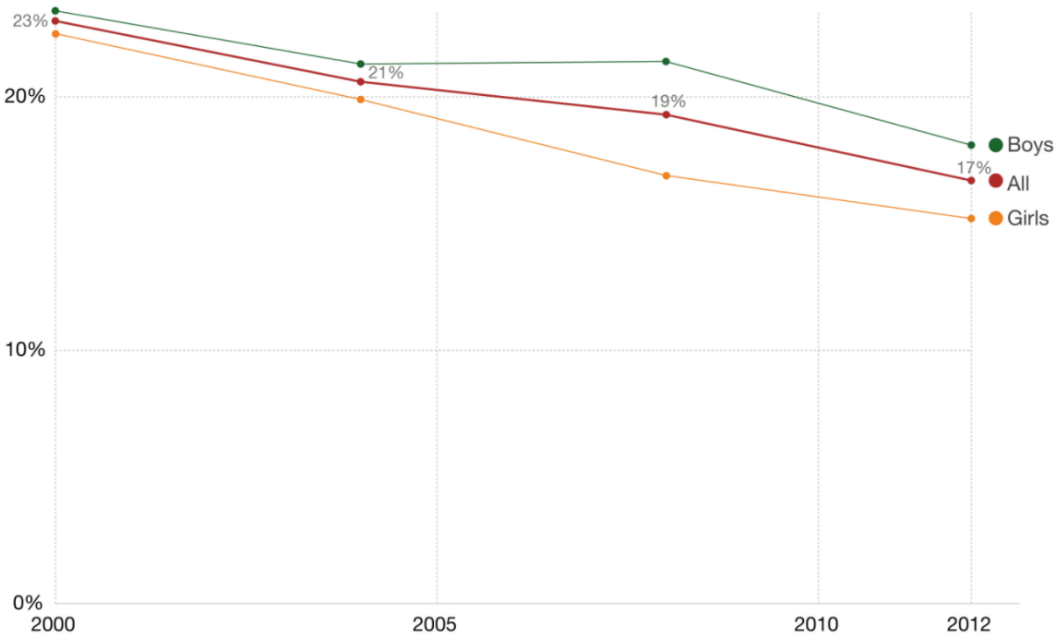


Table 2. Global incidence of child labour, 2000-2012.

ing Progress Against Child Labour 2013", yet 17% of all children on our planet age 5-17 were involved in economic activity for a minimum of one hour during this survey. Though it is a practice that ran counter to human rights companies turn a blind eye

to what is happening at the end of their supply chains. Currently, 152 million children are still involved in the work process. (Guy Ryder, 2020) Typically, child labor occurs in such activities as agriculture and raw material extraction (International Labour Organization, 2019, p. 9). First tiers can even not be aware of child labor occurring in their supply chain. Thus, transparency throughout the whole supply chain is the key to sustainable development. More powerful first tiers suppliers can force their suppliers to become more sustainable. Or break a contract and find another supplier, in case they refuse to change the way they do business.

Referring to SDG number 10, inequalities within and among countries have to be diminished. Unequal access to safe drinking water, education, basic health services, discrimination, inequality in incomes, and much more; these factors endanger economic and social development (UN). People with disabilities, as well as elderly people, refugees, and migrants, are considered to be the most vulnerable groups and they are at risk of discrimination (UN). During the pandemic 2019, these groups of people were being hit the hardest. Inequality issues occur not only in developing and poor countries or regions but in developed and rich as well (UN). Currently, more than 1 billion people live with disabilities and 80% of them live in developing countries (UNDP). Vulnerable groups must have access to quality education, health care services, and social protection along with the provision of decent jobs (UN). According to the United Nations, in order to reduce social inequality promotion of a safe environment for migration has to be secured by governments and stakeholders. Laws and policies that somehow discriminate against some groups of people must be eliminated so that no one's rights are violated (UN). The 2030 Agenda guarantee to leave no one behind and through policies and regulations provide secure equal opportunities for all and reduce inequalities.

2.3 Environmental sustainability

Environmental concern is growing among the population of the Earth. Air and water pollution, global warming, deforestation, and climate change. And it is just the beginning of the long list of environmental issues we have to deal with. According to the United Nations, 2019 was the second warmest year recorded. UK's Met Office presents the statistic on the global average temperature difference from 1850 to 2019. In the figure 5, global warming patterns can be seen. The graphic proposes that the

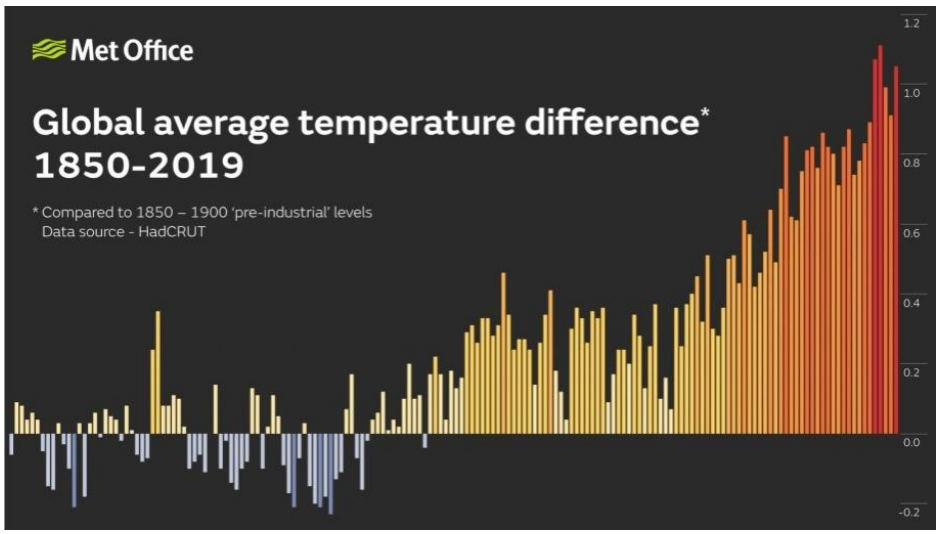


Figure 5. Global average temperature difference 1850-2019.

temperature started to rise in the 1800s presumably due to the Industrial Revolution and it keeps rising mainly because of CO2 emissions in the atmosphere (EartSky). To limit global warming the international community presented the 13th SDG that addresses climate change and its impact (UN). In December 2015, at the Paris climate conference was made the Paris Agreement that aims to avert critical climate change by reducing global warming to 1.5 Celsius Degrees. All countries that adopted the Paris Agreement committed to take actions regarding climate change and ensure transparency by tracking the progress made towards their commitments and reporting to each other and society on climate actions they achieve (European Commission). Global warming caused Australian bushfires in September 2019 and until March 2020 it could not be extinguished. At least 33 people were killed and over 11 million hectares of forest, bush and parks have been burned contributing to eco-systems biodiversity (BBC). Smoke from fires affected the air quality and caused bad weather conditions. In addition, global warming is responsible for glaciers melting

leading to the rise of sea level (WWF). It is predicted that one-third of the world's glaciers will melt by 2100 adding to the rise of sea levels and disrupting normal ocean circulation patterns, therefore, creating such climate events as hurricanes and typhoons (WWF). Glaciers were home to many species and since they are melting those species are now in danger of extension. The disappearance of glaciers means less fresh water available for the population (WWF). In order to strengthen climate adaptation and resilience 13th SDG targets to integrate climate change measures into policies and raise awareness of this issue through improved education (UN).

The reality is that global resources deplete faster than renews. Companies have to act responsibly in order to reduce their negative impact on the environment since they are considered to be the biggest contributors to environmental sustainability. 70% of the world's greenhouse gas emissions can be tied to 100 companies (Riley T., 2017). The diagram below shows the sources of greenhouse gas emissions in the EU by source sector in 2017. 80.70% of emissions come from the consumption and

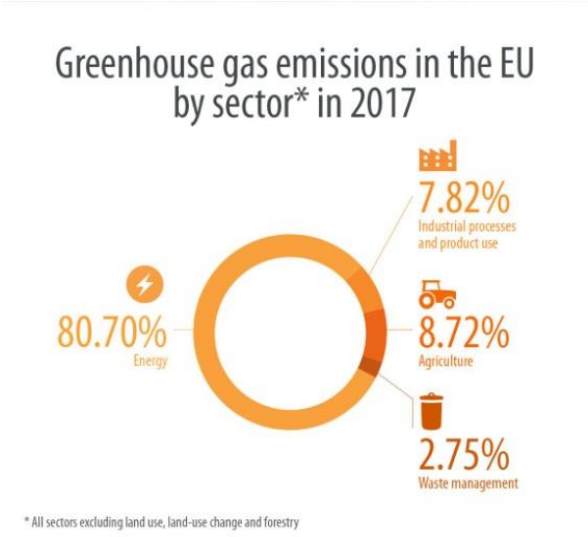


Figure 6. Greenhouse gas emissions in the EU by sector in 2017.

production of energy. This includes heating and cooling of buildings, gasoline for vehicles, oil and gas production, extracting raw materials activities, and non-renewable electricity production. 8.72% of emissions come from agricultural activities such as rice production, livestock (caws), and agricultural soils (EPA). Such industrial activities as transforming materials chemically or physically contribute with 7.82% to greenhouse gas emissions. 2.75% of emissions come from the waste that is

landfilled. The organic materials in the waste decompose and produce gas. All mentioned above human activities generate gas emissions and heat our planet.

Social and economic progress is followed by environmental degradation putting at risk the future development and survival of humanity (UN). Responsible production, consumption, and disposing are being one of the SDGs that needs to be met by 2030. It is a well-known fact that food has a high carbon footprint as it requires a lot of energy to harvest, package, transport, prepare and dispose afterward (Food and Agriculture Organization of the United Nations). Every year in Finland households waste 120-160 million kilograms of food and this is equivalent to 1,000 million kilograms of CO2 (Luke). Usually, food is being thrown away because it is either expired or spoiled. Although some people prefer to order food online because of lack of time or unwillingness to cook the disposal problem still occurs. The graph below illustrates the treatment rates for domestically generated waste excluding major mineral wastes in the EU-28 from 2010 to 2016. It shows how the waste generated in the EU is treated. Most of the waste is being recycled, however, the percentage of waste that is landfilled still remains above 20% and EU waste policy commits to reduce this

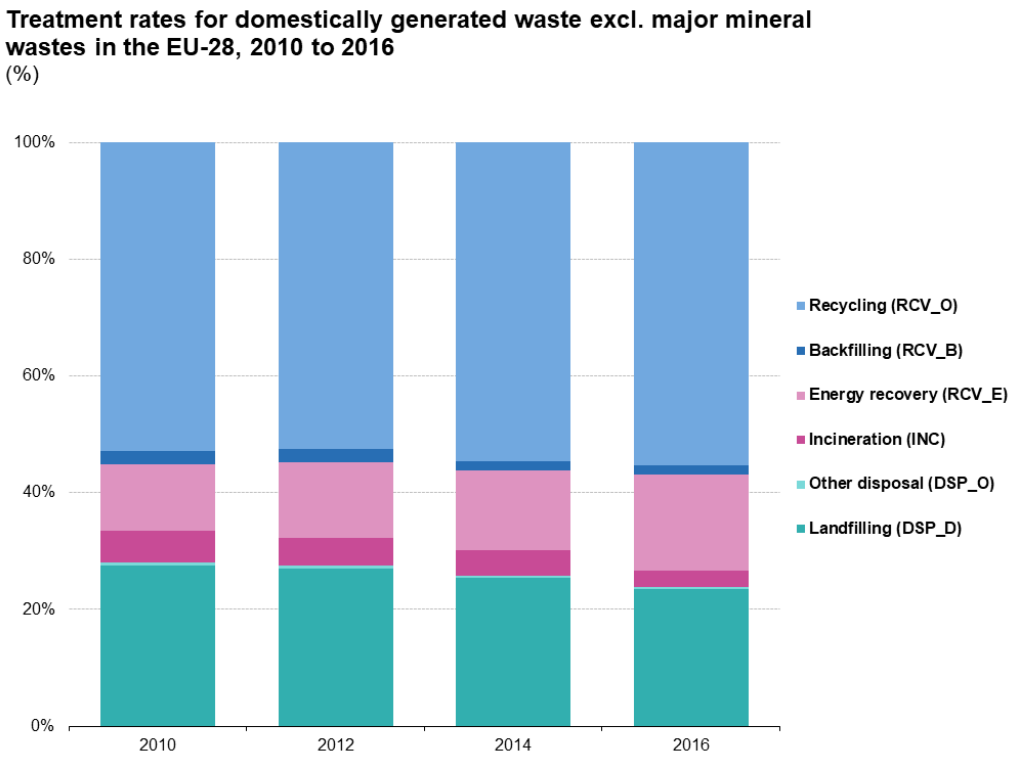


Figure 7. The treatment rates for domestically generated waste excluding major mineral wastes in the EU-28 from 2010 to 2016.

number by implementing the circular economy (Eurostat). According to Conrad B. MacKerron (2015) reusability is one of the preferable food packaging material components. To reduce the environmental impact packaging materials have on the Earth, businesses have to change plastic boxes and cutleries with more recyclable material, for instance, paper. During beach cleanups plastic boxes and cutleries are the most frequent find (Conrad B. MacKerron). The article of Eurostat reveals statics on packaging waste generated by packaging material in the EU in 2017. 41% of packaging waste comes from paper and cardboard, 19% from plastic, 18% from glass, 17% from wood, and 5% from metal. These are the most common types of packaging used in the EU. To ensure that all materials are recycled the European Parliament and the Council adopted a Directive in 2004 where they set recovery and recycling targets. Due to rapid population growth and global resource depletion we need to learn how to keep products and materials in use for as long as possible. A circular economy, in its turn, can bring major economic benefits. For instance, by minimizing the waste and resource use we extend the life cycle and value of products. Thereby, we lower the need for extracting raw materials that leads to reducing greenhouse gas emissions. According to European Parlament (2018), such practices as re-use and recycle could save EU companies 600 billion euros while also reducing total annual greenhouse gas emissions by 2-4%. The data revealed by the United Nations demonstrates that 13.8% of food was lost in the supply chains in 2016. The reduction of food loss and waste is the main target of the 12th SDG and, thereby, aims to reduce production costs and increase food system efficiency (UN). To cope with this problem companies have to present more innovative and sustainable solutions for production and disposing, meanwhile, consumers need to reduce the waste they generate and usage of plastic (UN).

Environmental issues have become urgent over the past years and governments are taking control of this situation. Through establishing policies and regulations related to environmental protection countries ensure that environmental sustainability is carried out as a global objective (Evans, M., 2020). There are several agencies that are responsible for administering environmental laws and regulations. One of the examples is The Environmental Protection Agency (EPA) in the U.S. Violation of such environmental laws could lead to fees, jail time, or probation (Evans M., 2020). Due

to such regulations companies all over the world implement sustainability into their operations. Those who do not follow this trend put themselves at risk of being excluded from the main competition.

2.4 Economic sustainability

We used to think that economic sustainability is only about profit. But it is not. Economic sustainability is strategies aimed at long-term economic growth without having a negative impact on society and the environment by allocating social and economic resources in efficient and responsible ways (University of Mary Washington). In fact, for a company to be economically sustainable means to have good governance, compliance, and risk management system (Beattie A., 2019).

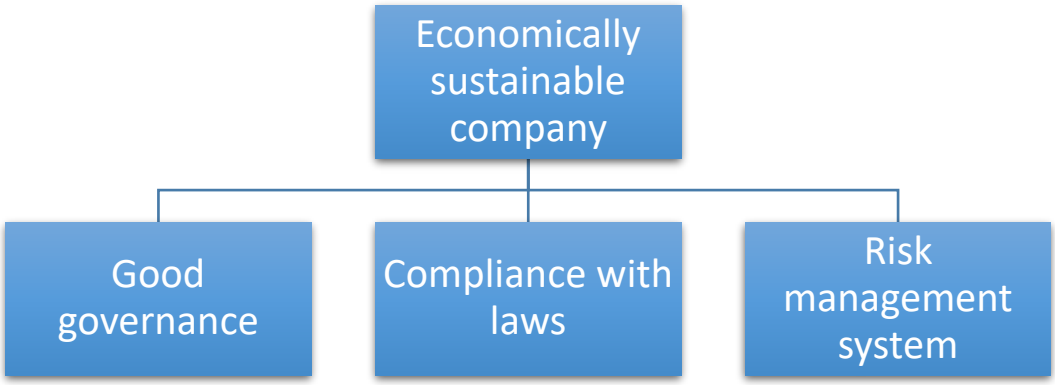


Table 3. Three characteristics of economically sustainable company.

According to James C. (2020), governance implies the system of rules by which a company is managed. United Nations defined governance as the process of decision making. Putting these two definitions together will give the full picture of what governance is. Governance is the decision-making process and the system of rules by which decisions are implemented. As in every process, there are different actors involved in it. Actors may vary, however, one always remains in the process and it is government. The government carries out the objectives throughout the whole decision-making process as well as its execution after the decisions were made. To establish good governance within the company the board of directors has to align with shareholders' interests, companies' value chain, and customers. The company's vision and mission statement have to coherent with its commitments and strategies

responding to the needs of society. Principle 10 of the Rio Declaration (1992) states that each individual should have equal access to information and participation in decision-making processes related to environmental problems. Taking the needs of people into account when adopting environmental policies enables people to participate in it. And participation is a crucial part of good governance (United Nations).

Sustainability seeks policy integration and governance is responsible for applying such frameworks at all levels of business. Being transparent and aware of environmental issues attracts investors and helps companies to build trust with shareholders and customers. Under good governance, corruption is excluded from the decision-making processes. Provided information on a particular problem should be complete and in easy access for all participants involved in the process. Without transparency, accountability could not be reached. Businesses, institutions, and governments have to be accountable to society and their stakeholders (United Nations). With accountability comes great responsibility and awareness of what should be done in order to prevent economic crisis and integrate sustainable development in the core of the business.

Ensuring environmental compliance within the company will ensure cost savings through better resource allocation, reduced risk, improved reputation, and employee motivation (OECD, 2004). Complying with regulations is cheaper than paying fees for non-compliance when detected. Costs of non-compliance can be reputational costs, fees, loss of employees, loss of license to operate, loss of revenue, and loss of production (Thimothy C.). Company that operates not according to its permit may be shut down or fined. Knowing about non-compliance and not trying to correct it can affect the whole business. Incidents related to safety or the environment may occur and lead to expenses in order to respond to it. Having a transparent accounting system reduces the risk of being caught for violation of laws or hidden money transfers. A company that operates in accordance to compliance and includes their shareholders, employees, and customers into the business process gains a good reputation status and this, in its turn, motivates people to work harder to achieve common goals. Otherwise, employees may leave work or arrange boycotts because

they simply do not want to work for a company that is breaking the law. Losing potential employees is another impact that non-compliance has on the business. None wants to apply for a job in a company that is violating the law and does not hear the voice of society.

Out of 17 SDGs 5 address importance of economic sustainability and actions that have to be taken in order to achieve a long-run economic growth without harming the environment and society. The first SDG is targeted at the extermination of pov-

1st SDG	•Aims to exterminate poverty.
7th SDG	•Aims to provide access to affordable and clean energy for all.
8th SDG	•Aims to improve sustainable economic growth and provide decen work and employement.
9th SDG	•Aims to develop resilient infrastructure, boost sustainable industrialization, encourage innovation.
11th SDG	•Aims to make cities and communities more sustainable.

Table 4. SDGs that address economical issues.

erty. In order to achieve economic sustainability, humanity needs to find new ways of using global resources more efficiently and adapt our way of living to it. With our current economy that delivers a minimum living standard, it seems impossible to achieve it (Jane Courtnell). 9.2% of the world population live in extreme poverty which means they have 1.90 $ or less to spend per day (Andrea Peer). It is clearly not enough to maintain a healthy lifestyle. People are struggling to survive on this amount of money per day. The resources needed for a living are not in easy access anymore. Overpopulation and overconsumption played an important role in it. Food, education, and medicine should be publicly available for everyone which is currently not the case. European Commission states that a cross-sectoral approach should be taken in order to tackle this problem. Thus, only with common efforts, it is possible to eradicate poverty in the world and achieve the intended SDG by 2030. Helping the

poorest categories of people to fight against poverty should be a priority and it also means to back people in their efforts for peace and security (European Commission).

During the COVID-19 many people had lost their jobs and fell into poverty causing a slowdown in economic growth. However, even before the pandemic per capita incomes were more likely to decline in 2020 (UN). Now, due to the interruption of industrial production and market volatility, it is predicted that in 2020 GDP per capita will decline by 4.2% (UN). In figure 8 published by the United Nations Industrial Development Organization, it can be seen that global GDP growth is expected to decline during the COVID-19. However, industries that produce beverages, food, and pharmaceutical products are yet performing well over the pandemic while other industries, for instance, manufacturing industries, experience an economic crisis (UNIDO).

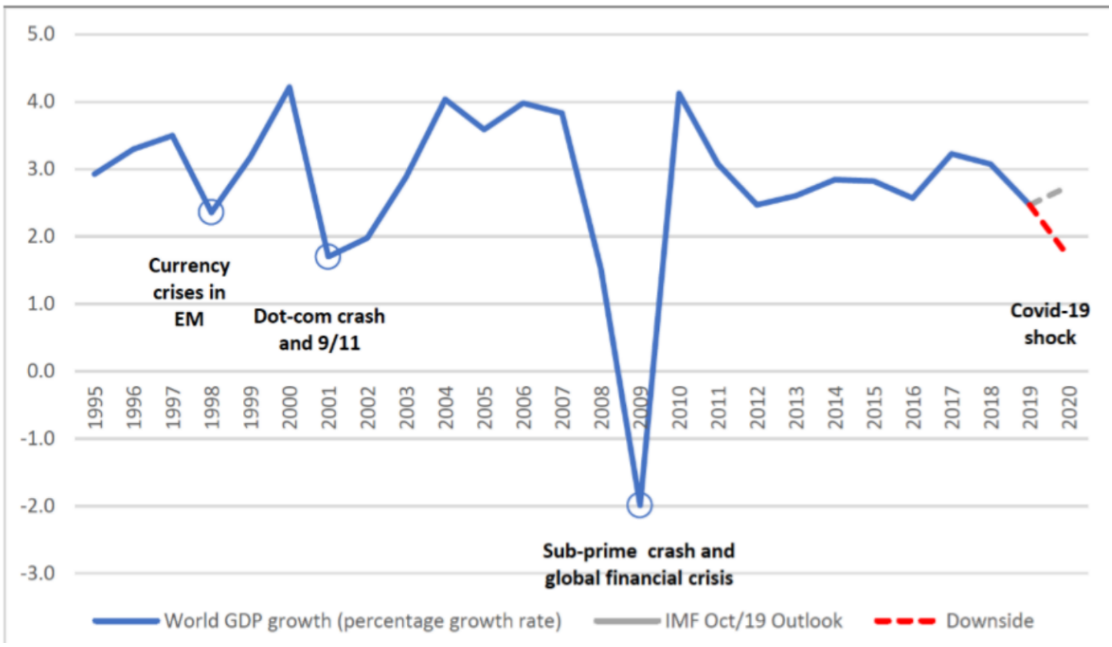


Figure 8. Global GDP growth, 1995-2020.

The reduction of working hours in the second quarter of 2020 caused by the coronavirus pandemic will put 1.6 billion people at risk of losing their livelihoods (International Labour Organization). Especially this hit the hardest such economic sectors as manufacturing, retail, food services, tourism, and other businesses, said the International Labour Organization. Policy measures are needed to support and protect the small enterprises, workers, and the most vulnerable (ILO). The economic sector that is hit the hardest due to COVID-19 is tourism. Borders closure, travel bans, and lockdown can decrease international tourism arrivals by 60-80% in comparison with 2019

(UN). The created target of sustainable development goal number 8 is to improve sustainable economic growth and provide decent work and employment for all. Everyone must be able to get a decent job that provides fair incomes, social protection, and prospects for personal development (UN). By investing in high-level training and education governments will assist young people in getting the skills needed to compete in the labor market and, thereby, get decent jobs regardless of their race, gender, and socio-economic background (UN). In order to protect a safe work environment, governments should implement sufficient safety and health measures and build-up an enhanced work environment (UN). Through innovations and technological progress higher economic productivity can be achieved by 2030 as it states in SDG 8. Also, promoting policies that support such activities as entrepreneurship, the creation of decent jobs, innovation, and growth of all size enterprises will contribute to sustainable economic growth (UN).

As our population gets bigger infrastructures get more complicated. The 9th SDG aims to develop a resilient infrastructure, boost sustainable industrialization, and encourage innovation (European Commission). Infrastructure development creates the condition for economic growth which leads to poverty reduction and improvement of living conditions (UN). Governments should take a lead in developing and financing such infrastructure projects as transport, communication, water, and sanitation, so, it can be accessible to anyone. According to the European Commission, approximately 800 million people do not have access to water. There can be no talk about economic sustainability if basic people's needs are not met. The most attention should be paid to developing countries where unsustainable industrial processes may occur and affect their economy badly. For instance, poor infrastructure slows down the productivity of African companies by 40% (Chimbelu C.). Due to unreliable power supply companies start to buy diesel-operated power generators that produce electricity which is two times more expensive than energy from the coil. These diesel-operated power generators contribute to increasing CO2 emissions causing serious damage to the planet. Furthermore, road and rail infrastructures are not developed in Africa and this creates many problems for the companies operating there. An overall economy is affected by the poor infrastructure and lack of financing. Thus, following the 9th sustainable development goal the EU supports their partner countries'

transformation towards sustainable processes and technologies, and improving the financing of infrastructures which in its turn will boost their productivity and competitiveness (European Commission). At the same time, access to affordable and clean energy is important for accelerating economic growth and the 7th SDG aims to provide it to all. Electricity powers healthcare facilities, educational institutions, buildings, lighting, and telecommunication to promote IT development, which, in its turn, boosts countries' economies. Nowadays, electric vehicles play an important role in fighting against climate change as they use electricity instead of fuel, thereby, reducing greenhouse gas emissions (Zeke Hausfather). According to the United Nations, in 2018, 789 million people had no access to electricity. Without electricity supplies, good infrastructure cannot be achieved and the transition process to renewable energy will be slowed down.

On the one hand, urbanization of cities and metropolitan areas directly accompanies economic growth as it contributes approximately 60% of world GDP (UN). On the other side, 70% of global carbon emissions and 60% of resource use come from urbanized areas (UN). With fast urbanization come poor infrastructures, air pollution, a rising number of people living in slums in urban areas, inadequate services (sanitation systems, transport, waste collection), and badly planned urban expansion. According to the United Nations in 2019 mere half of the world's urban population had proper access to public transport and 828 million people were living in slums. Make

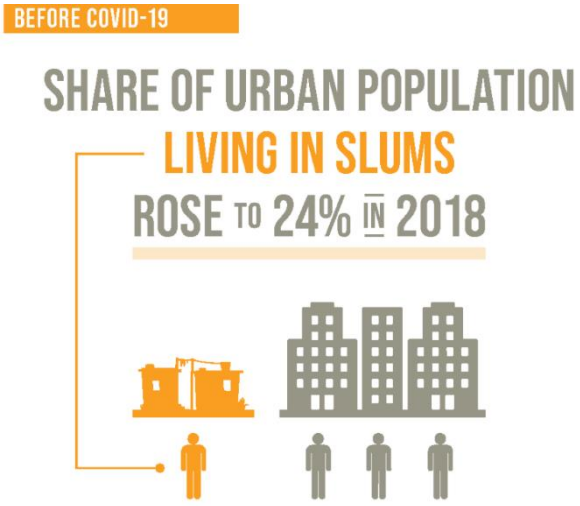


Figure 9. Share of urban population living in slums.

cities more sustainable and safer places to live, create cities where all citizens are

living a decent quality of life without harming the environment are the targets of sustainable development goal number 11. By 2030, SDG 11 aims to provide affordable and safe housing, transport systems, basic services, improve slums conditions, and reduce economic losses that relate to GDP (UN).

Furthermore, sustainable business is attractive to both investors and consumers. Being aware of environmental issues consumers give preference to the companies that act responsibly towards the environment. An emerging trend towards investing in environmentally sustainable businesses makes investors interested (Failte Airland). Another reason to become sustainable is differentiation. To compete in the market, companies need to present something unique and by offering sustainable products they can differentiate their service or product from others. For instance, food delivery companies can make restaurants that they are working with to use recyclable packages and cutleries. By supporting carbon offset projects such as forest restoration or conservation; companies can compensate for their CO2 emissions. Those are the actions that can help a business to appear unique for the customers and stakeholders.

3 Sustainability in crowd-shipping

Due to the rapid growth of e-commerce supply chains need to accommodate the new conditions and modify their deliveries so they can be cheaper, faster, and more reliable, thus, special attention should be given to the last stage of the supply chain or last-mile delivery, where the product is delivered to the final customer (Gdowska K). Here are two delivery options that take place; the first one is when delivery is made by the professional fleet and another option is when delivery is outsourced to the crowd-shipping company that uses ordinary people to perform deliveries (Gdowska K). Referring to Tho V. Le and Satish V. Ukkusuri crowd-shipping delivery is an app-based platform that connects the individuals wanting to ship a packet with an individual willing to carry the shipment in the first or last-mile logistics of urban areas. Couriers may perform the delivery using their daily travel routes or supplementary

trip. The app-based platform chooses courier, which is the closest to the delivery route, have the best reputation among other couriers, or offer the cheapest delivery fee (Le, Ukkusuri). Performing delivery along the usual route minimizes the environmental impact from vehicles, however, provided compensation for traveling longer distances can scale down the addressed issues in terms of environment (Paloheimo H.). In crowd-shipping understanding of the supply and demand sides is very important and contributes to building sustainable logistics and business models. By taking into account the needs and expectations of customers' crowd-shipping companies will get insights about the demand side. Willingness to work as a courier is a crucial part of forming the workforce and establishing pricing policies for couriers as well as creating a user-friendly app play an important role in such models (Le, Ukkusuri). Thus, potential socio-economic and environmental impacts along with customers and couriers' behavior have to be investigated in order to operate a sustainable crowd-shipping business model.

3.1 Social sustainability in crowd-shipping

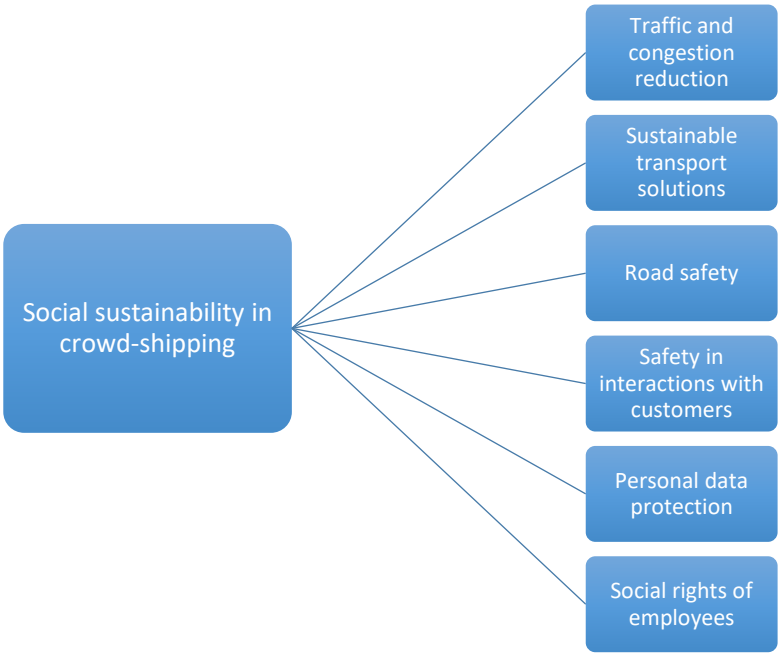


Table 5. Main areas of social sustainability in crowd-shipping.

The contribution of crowd-shipping to social sustainability manifests in traffic, and congestion reductions through better and more efficient utilization of vehicles

(Heleen B. Rai). Crowd-shipping promotes consolidation, consequently, reducing the number of vehicles on the road which brings benefits to the sustainability of cities. Noise is another issue that people who live in urban areas are facing and according to the World Health Organization, traffic noise has an extensive impact on human health. Hearing loss, heart diseases, and sleep disturbance are all caused by noise that comes from vehicles on the road. European Economic Community Directive presents noise limits for road vehicles and requirements for sound level measurements. Limit values for passenger and goods vehicles may vary from 74 dB (A) to 80 dB (A) meanwhile for the motorcycle it is from 75 dB (A) to 80dB (A) (EEC Directive). Not only noise reduction can be achieved by implementing more sustainable transport solutions but also the promotion of healthy lifestyles in regard to walking and cycling, personal integrity, and safety (TWG). Target 3.4 of SDG aims, by 2030, "to reduce by 1/3 pre-mature mortality from non-communicable diseases through prevention and treatment and promote mental health and wellbeing" (EU). Air pollutants such as carbon monoxide, small particulate matter, benzene, heavy metals, and much more affect public health in a bad way causing premature deaths of 3.7 million people (TWG). In order to accomplish sustainable development, the EU commits to, by 2030, reduce injuries and deaths that are related to road traffic accidents (EU). Every year in road traffic accidents about 1.24 million people are killed (TWG). Based on a paper prepared by the Technical Working Group on Transport improved road safety is a key element in reaching the 3rd SDG.

Ensuring a safe work environment is the direct duty of the employer and an important factor that has to be taken into account when running a socially responsible business. The tool to help the employer to prevent and fix work-related problems is called risk assessment. It helps the employer to assess and improve occupational safety at the workplace. This tool finds hazards and flaws in the work environment, their severity, and probability. In the risk assessment accidents that have occurred, working conditions, occupational illnesses, and employee's gender, age, and other personal characteristics must be evaluated (JHL). The risk assessment must be done regularly. In the food delivery sector, special attention must be paid to safety on the roads. The graph below shows the statistics on the annual number of fatalities in road traffic accidents in Finland from 2008 to 2019. According to it in Finland in 2019

were registered 182 fatal cases. Although this number has dropped compared to previous years, accidents still happen. Couriers in pursuit of obtaining a higher commis-

Figure 10. Annual number of fatalities in road traffic accidents in Finland from 2008 to 2019.

sion for delivery or meeting the delivery time deadlines quite often ignore the traffic lights, thereby, the traffic accidents possibility is increasing (Li C., Mirosa M.). Riding bikes on sidewalks or riding cars in opposite direction in a one-way street is caused by misunderstanding in traffic when driving in a new area or a rush (Wolt). Sometimes due to limited parking lots couriers can park their cars for a while in unauthorized places during pick-ups and drop-offs (Wolt). In 2019 in China during half of the year were registered 3357 traffic accidents involving couriers delivering food on bikes (Li C., Mirosa M.). To ensure safety and efficiency during the deliveries courier's education of traffic rules and parking regulations during the courier introduction session should be provided (Wolt). Sharing information with couriers regarding the new traffic laws can also contribute to improving the road situation.

An app platform that crowd-workers use shares personal data of customers such as location and phone number, thus, privacy must be put in the first place (Heleen B. Rai). When the app matches couriers and their tasks it uses data analysis and to keep the user data safe "hashing" or converting personal data into another value is applied (Heleen B. Rai). The European Commission encourages crowd-shipping platforms to comply with the law on personal data protection (Heleen B. Rai). It would

seem that from a social point of view crowd-shipping is a very sustainable business model as it gives couriers freedom to go online any time they want and for as long as they want, and access to flexible earnings paired with safety (Wolt). However, since crowd-workers are volunteers or self-employed people they do not have social protection and due to unstable demand and high competition can face financial problems (Heleen B. Rai). In table 5 listed the positive and negative sides of self-employed couriers. On November 16th, 2020 the minister of education of Finland Li Andersson

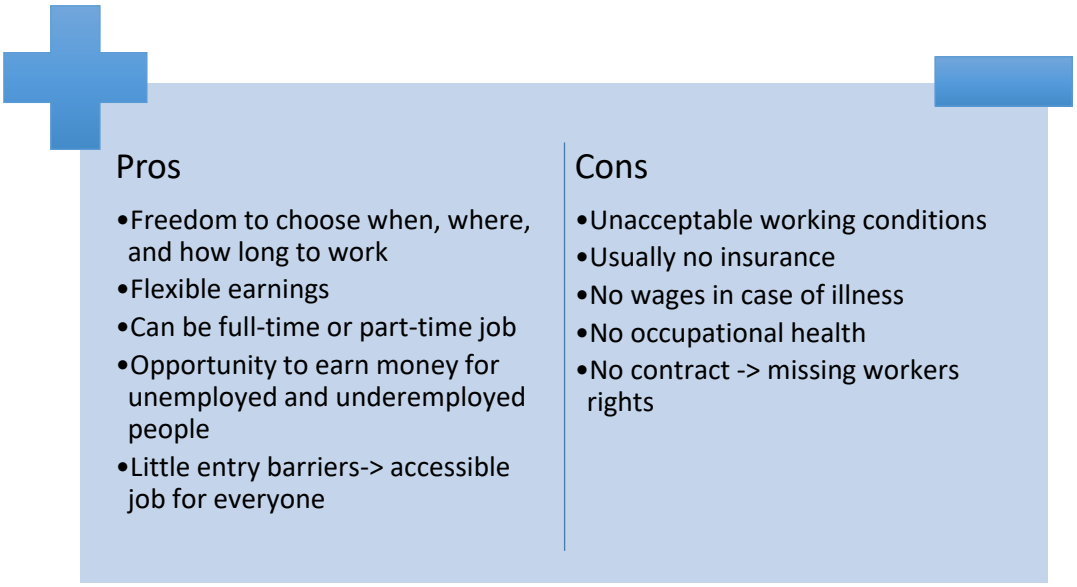


Table 6. Positive and negative sides of light entrepreneurship.

said that such a crowd-shipping model does not provide any insurance against accidents at work, no occupational health, no wages in case of illness (MTV Uutiset). It is also not a payment of wages and an employment contract, but an invoice provided as a light entrepreneur and service agreement. According to Li Anderson, such entrepreneurship has become an ongoing problem for the Finnish labour market, linked to the violation of minimum working conditions. Indeed, delivery workers are freelancers or entrepreneurs which means they do not have same rights as contracted workers (Mikko P., Arseniy S.). However, such “light entrepreneur” model has its positive sides. Wolt Fair Platform Work present reasons why working as a light entrepreneur is beneficial, for instance, couriers can choose either to work as a self-employed or a variety of company forms, freedom to choose minimum or maximum working hours or when to go online and offline, freedom to accept or reject any offered task, freedom to choose a delivery area. Furthermore, Wolt pays the VAT to those who are

VAT registered, Wolt provides free accident insurance to their courier partners, Wolt couriers can provide their services to any other companies even competitors of Wolt, and Wolt couriers can easily stop working (temporarily or permanently) by not opening the Wolt app. All the mentioned above provides flexibility and safety for the couriers and as mentioned on Wolt's website they score 4 out of 5 on the satisfaction of couriers with Wolt and 3,9 out of 5 on the courier's satisfaction with earnings through the Wolt platform. Usually, couriers work according to the terms and conditions set out by the food delivery platform they work with. Yet the topic on this matter remains open: should everything be left as it is or couriers should become full-fledged workers with an employment contract.

During the COVID-19 the demand for online food delivery services has increased as people were locked into their homes without having an opportunity to go shopping for groceries. According to the "Delivery" project manager in Russia average customer growth in online food delivery service is 30% and the main audience is people 20-40 years old. Delivery became an essential service at the time of pandemic and governments of some countries allowed couriers to move around cities despite the lockdowns helping millions of people to quarantine at home (Mikko P., Arseniy S.). Some food delivery platforms introduced a new feature called "contactless delivery" allowing couriers to leave food at the customers' door instead of meeting them face-to-face (Li C., Mirosa M.). In China, food delivery platforms started to hand out free meals in order to thank the medical staff for their help and commitments to the cause (Li C., Mirosa M.). However, online food delivery service during the pandemic 2020 has its downside associated with the health of couriers. Couriers are among those people who are exposed to the virus the most since they carry out deliveries around the cities to millions of customers disregarding the lockdowns (Mikko P., Arseniy S.). As the COVID-19 symptoms may vary some of the couriers may not know that they are infected and continue to perform deliveries spreading the virus among the population, especially when working with such online food delivery platforms as Foodora where performance and activity ratings directly influence chances of getting new work shifts (Mikko P., Arseniy S.). If a courier were put in 2 weeks period quarantine or decided to stay at home in self-quarantine for a couple of days his or her

activity ratings will drop dramatically resulting in losing the privilege to choose suitable work shifts (Mikko P., Arseniy S.).

Through creating different volunteer programs companies show the public that they care about social sustainability and act responsibly to achieve it. This, in its turn, attracts new talents and customers. Employees and consumers are willing to contribute to society through such programs and by giving them this chance company grows to scale. In our world, it is important to understand that you compete not only on a local level but also globally. To succeed in fast-paced competition companies have to differentiate themselves from others that have similar products or services. Becoming socially sustainable is a great way to show to the world that your business does not only focus on making a profit but also cares about society and the people they work with.

3.2 Environmental sustainability in crowd-shipping

Environmental sustainability in crowd-shipping commits to ensuring access to reliable and affordable energy for all, sustainable production and consumption, and reduction of CO2 emissions. 25% of the global energy demand comes from the

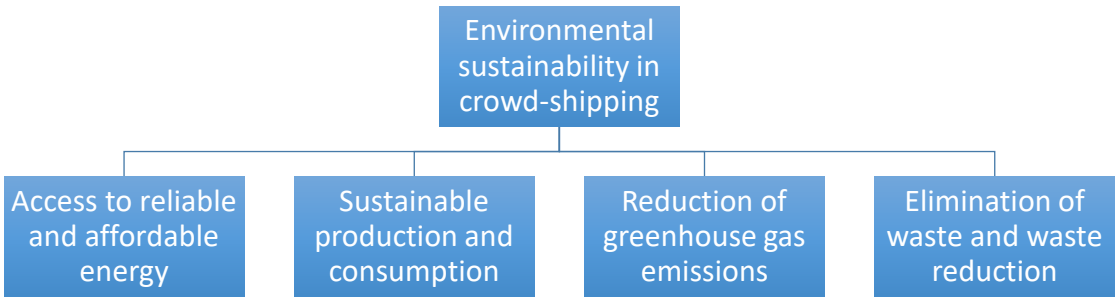


Table 7. Focus areas of environmental sustainability in crowd-shipping.

transport sector and in order to achieve the 7th SDG by 2030 the alternatives to fossil fuel have to be found and the efficiency of that fuel use needs to be improved (TWG). Through providing high-quality fuels, implementing fiscal policies, encouraging eco-driving and electric vehicles together with transport system improvement of

universal access to reliable energy services and reduction of CO2 emissions goals can be achieved (TWG). Eliminating fuel subsidies that are harmful to the environment will secure sustainable production and consumption as well as cut down air pollution. According to TWG in countries with fuel subsidies, the number of road accidents is higher since those fuel subsidies promote driving and, therefore, more air pollution and greenhouse gas emission. Poor transport infrastructure leads to losses and waste of food during its transportation while applying green logistics can help to avoid such problems and contribute on a good level to sustainable production and consumption ways of services and goods (TWG). Sustainable development goal number 12 aims, by 2030, to cut down losses in supply chains and production processes in conjunction with food waste at the consumer and retail levels (EU). As it states in SDG 11 well-planned and inclusive urbanization is needed in order to make cities safer and more sustainable which in its turn will provide more options for mobility (cycling, walking) and positively influence environmental sustainability (TWG).

According to the 4th principle of the Rio Declaration on Environment and Development (1922), environmental protection should be an integral part of the progress in order to achieve sustainable development. Making environmental sustainability the core concept of the business, in the long run, will help companies not only to become more sustainable and competitive on the market but also benefit financially from it. For instance, optimizing delivery routes can contribute to cost-efficiency improving and, at the same time, reduce carbon footprints. Consolidated deliveries are also a way to reduce carbon footprint and save money. A common practice here is that quite frequently companies do not need a whole track space, thus, half of it or less is not used but they still have to pay for the entire space (Robinson C.H.). By combining multiple deliveries into one fully loaded track companies do not have to pay for an empty space. The fewer tracks and deliveries are needed, the fewer greenhouse gases per vehicle are produced. Nowadays, transport accounts for about 30% of the EU total CO2 emissions (European Parlament). In the food delivery sector where deliveries are mostly made by cars or motorcycles, special attention should be paid to reducing CO2 emissions. Figure 11

shows the emissions breakdown by transport mode in the EU in 2016. It is clearly seen that 72% of CO2 emissions come from road transportation and the majority of it

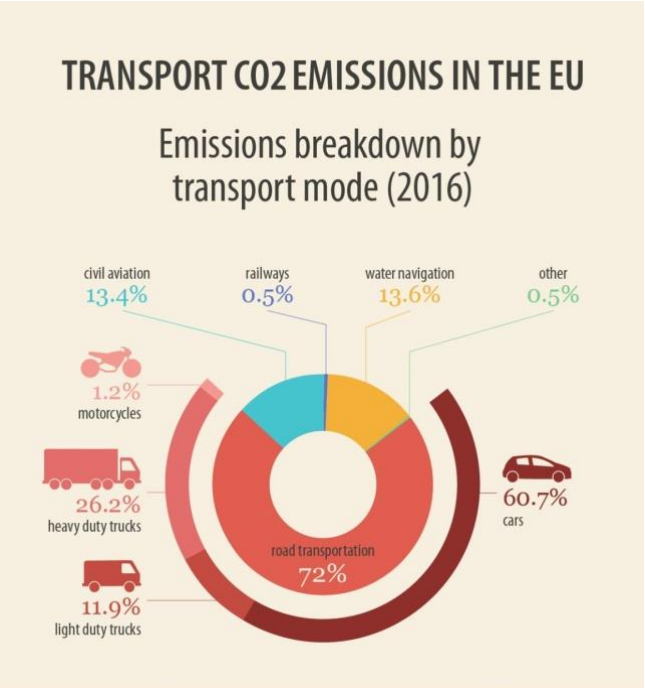


Figure 11. Transport CO2 emissions in the EU.

comes from passenger cars (60.7%). During the Covid-19 the need for in-home food delivery has raised and due to that, the number of deliveries has increased as well as the number of CO2 emissions generated from cars and motorcycles. The alternative option for delivery is the usage of electric cars, motorcycles, or bikes, however, in this case, the energy consumption while charging vehicles or batteries for bikes will start growing proportionally. The question of how to reduce the impact vehicles have on the environment yet remains open.

Responsible consumption and disposal of food is a vital part of sustainable development for food delivery crowd-shipping companies. Many people prefer to order food online rather than cooking at home because it saves time and generates less waste. Indeed, ordering food online generates less waste than cooking at home but people often order more food than they could eat due to discounts offered by restaurants or portions that are enormously big. Even though consumers are aware of the impact the food industry has on the environment they do not think about keeping food leftovers for a future meal or reusing the food boxes (Li C., Mirosa M.). By including in the food ordering platform more restaurants that provide healthy food, food delivery

platforms can influence their customers to eat healthily and minimize waste. Food separation after consumption of takeaway food is another topic that should be highlighted. The problem here is that if do not separate the containers where it was kept, the containers, no matter what material they are made from, start to rot, thereby, making it difficult to recycle (Natural Home Brands). So, if the containers are dirty and tainted, they usually end up in landfills causing damage to the environment. In 2019, 884 Chinese universities participated in the survey which revealed that 67.2% of surveyed students did not separate food leftovers and containers where it was kept due to lack of knowledge (Li C., Mirosa M.). However, governments are the ones responsible for the provision of separated recycling bins and if they are not provided for some reason consumers have no choice but to put all their waste into one recycling bin even though they are convinced they have to separate their wastes (Li C., Mirosa M.). With the growth of the online food delivery sector, there is an increase in plastic waste generated so, for instance, in China the packaging waste volume increased from 0.2 million metric tons to 1.5 million metric tons in 2 years (Li C., Mirosa M.). Movements towards disposable and single-use packaging emerged during the pandemic 2020 since such packaging methods tend to be more hygienic and, thereby, reduces the risk of being infected (Li C., Mirosa M.). Another waste generated by online food delivery service comes from electric bicycles and it is batteries that are consigned to waste. Moreover, when the battery pack is damaged there is a risk of thermal event or toxicity rising an environmental concern among the public (Li C., Mirosa M.).

Nowadays, restaurants offer free delivery if customers meet the so-called “minimum price” requirement, therefore, customers order more food than they actually need or order together with their friends, colleagues, or roommates (Li C., Mirosa M.). This leads to an increased volume of food leftovers that are being thrown away because customers do not want to keep the food leftovers and have the same meal again or basically do not have an opportunity to keep food, for instance, people who live in dormitories are not allowed to have fridges (Li C., Mirosa M.). When people order from a new place, they cannot estimate the portion size and its taste and it can result in customers getting a large portion size which in its turn leads to more food waste generated (Li C., Mirosa M.). However, by ordering more expensive meals which

usually come in smaller portion sizes it is still possible to meet the “minimum price” requirement that is needed to get free delivery, customers get the portion sizes that can be presumably eaten (Li C., Mirosa M.). There are many apps that help customers and restaurants to prevent food waste and reduce hunger. For instance, in the US “Transfernation” app redirects about 2 metric tons of uneaten food per week and matches it with hungry people (Bozhinova K.). Volunteers and Uber drivers pick up food leftovers from receptions and offices to give them to homeless shelters. Drivers get 15$ per each pick-up, those people who donated food receive a tax write-off for each donation and those in need receive food, thus, this system is beneficial for all users (Bozhinova K.). Further, in the United States “Food Cowboy” app enables delivery drivers to create an alert in the app when food is rejected, thereby, food composters when receive alerts contact the person willing to donate food for the delivery arrangement (Bozhinova K.). Although the use of crowd-shipping for the surplus food transportation in the US prosper the success of such activities depends on a large number of food donors and crowd-shippers (Li C., Mirosa M.).

Due to climate change, the electric vehicle market is growing very fast and it is supported financially by public authorities (Markku Antikainen). Between 2008 and 2014 approximately 15 billion dollars was spent on electric mobility, infrastructure, research and development, and financial support, and other incentives (Markku Antikainen). In Finland, in 2010 the electric vehicle companies’ turnover was 200 million euros and now the goal of 2 billion euros has been set for 2020, furthermore, such machine producers as Kalmar, Rocla, and Sandvik are now developing new electric solutions (Markku Antikainen). Graph 12 presents the historical data of the global market of electric vehicles. As can be seen in the graph the number of light electric vehicles is continuously growing, however, from 2018 to 2019 there was a deviation from the growth rates and the reason for that is the decrease in sales in China and the USA, the two largest markets (Virta). Despite that deviation, the number of light electric vehicles globally was 9% higher in 2019 than in 2018 and was 2 264 400 units (Virta). 60 billion euros was invested in electric vehicles and batteries in 2019,

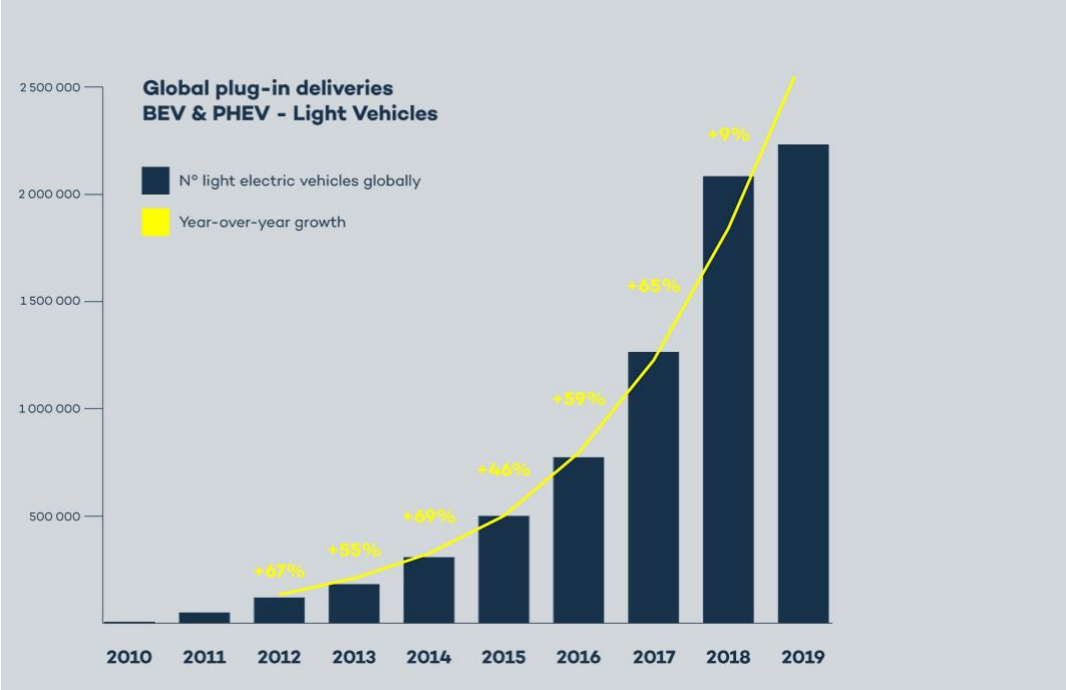


Figure 12. The historical data of the global market of electric vehicles.

however, as COVID-19 and borders closure might be extended the insufficient parts supply will have a negative impact on the global car industry (Virta). Although electric vehicles increase consumption of electricity, in the future they can become a solution for energy utilities meaning low operating costs, cheap energy storage, and no capital cost (Virta).

3.3 Economic sustainability in crowd-shipping

From the economic point of view, a crowd-shipping company can provide a vaster variety of products and high-level delivery services through flexibility, better pricing, real-time tracing, faster and convenient deliveries (Heleen B. Rai). Businesses are

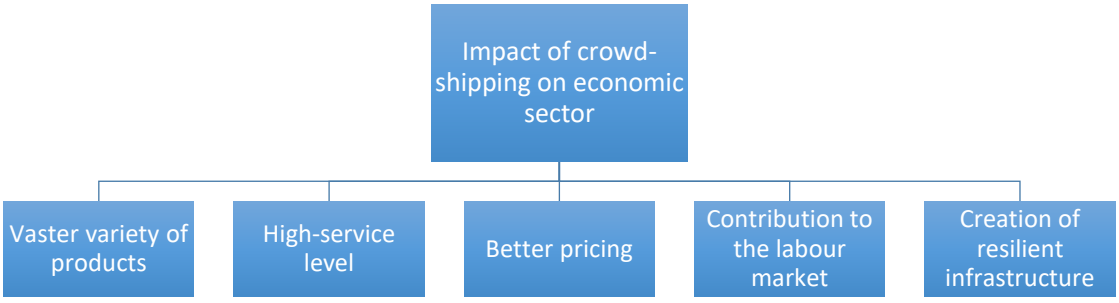


Table 8. Impact of crowd-shipping on economic sector.

able to reach a larger sector of potential customers and by relying upon flexible couriers reduce or get rid of their own fleet, hence, reducing maintenance costs and extra workers (Heleen B. Rai). Furthermore, accessible and flexible earnings make crowd-shipping attractive for employees and motivate them to work positively contributing to the labor market (Wolt). The transport sector can offer many employment opportunities and contribute to improving an employment rate, thereby, being a key element in achieving full and productive employment and decent work for all as it states in sustainable development goal number 8. In the EU about 10 million people are involved in the transport industry which accounts for 4.5% of total employment (TWG). In addition, 1.5% of employment comes from transport equipment manufacturing (TWG). Reduced traffic congestions can boost economic growth by reducing wasted time and fuel in those congestions along with lowering emissions. Sustainable and efficient transport and logistics solutions encourage green growth and safe road infrastructure resulting in preventing 40 million deaths and serious injuries over 20 years (TWG). Following the 9th SDG resilient infrastructure plays an important role in supply chain and economic development as disruptions to the trade could lead to increased transportation costs and several delayed products, and impairment of the economy's and business's ability to recover and prepare for disasters (TWG). The transport sector provides versatile opportunities for innovation, for instance, investing in Intelligent Transportation Systems (ITS) can strengthen the operational efficiency of transport and lower energy consumption (TWG). EU is targeted to promote innovation and multiply the number of R&D workers per 1 million people by 2030.

Compensation and pricing strategies directly influence the courier's willingness to work and the customer's desire to order the product through the service provided by a crowd-shipping company as customers expect the delivery fee to be within their budgets (Gdowska K). It is challenging for crowd-shipping companies to find a balance between the decent price for a delivery task, compensation scheme, and adequate task assignment. Typically, the delivery fees for couriers are based on an hourly rate or the number of deliveries performed, however, due to the flexibility of couriers, there is no guarantee that there will be enough couriers willing to accept a task at the given time and at a given place as they tend to choose the most profitable

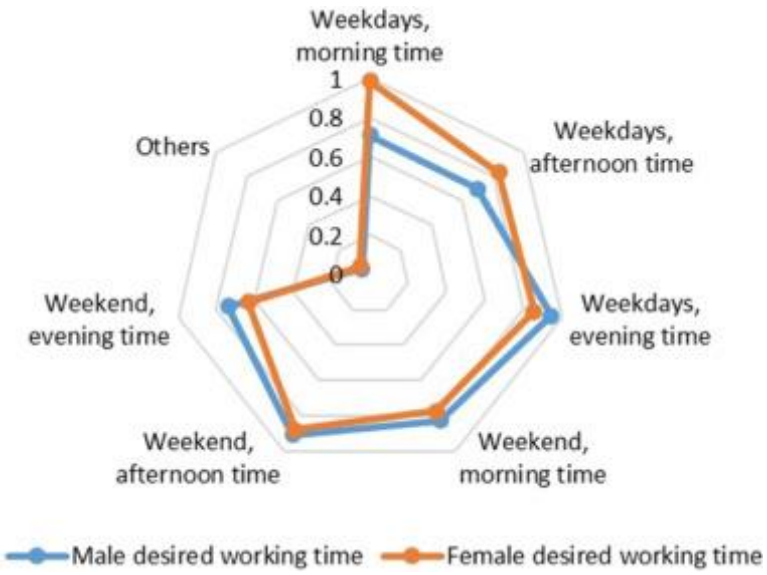


Figure 13. Couriers' desired working time.

periods to come online (Liteng Zha). In figure 13, the potential couriers' desired working time is presented. Females are more willing to work during morning and day times on weekdays while male couriers prefer to work in the evenings. Therefore, to avoid task starvation and the absence of couriers willing to perform delivery, it is critical to investigate how the couriers determine their shift's length (Liteng Zha). There are two theories regarding this topic, one assumes that the higher the wage rate the longer the average working time and the second expects the courier to stop working after reaching a particular earning goal (Liteng Zha). In most cases, the delivery cost is fixed, and the extra cost based on kilometers driven is added if the courier has to travel longer distances outside the agreed radius of the delivery area (Gdowska K). On the one hand, multiple studies about the effect of optimal compensation and pricing are assuming that couriers are only sensitive to the price, however, on the other side, the Banerjee et al. (2015) in his study assumed that if couriers are not served shortly they become very disappointed and willing to drop the task, consequently, couriers are sensitive to both the waiting time and the price (Liteng Zha). Figure 14 shows the potential time and distance tolerance of couriers where the average time that couriers are willing to spend for the task assigned and miles they are willing to travel are 20 minutes and 5 miles respectively. A high service level is needed in order to operate a sustainable business model, hence, deliveries have to be efficient, timely, and guaranteed (Heleen B. Rai). Couriers' willingness to work and their time flexibility have a big impact on the system performance and to successfully

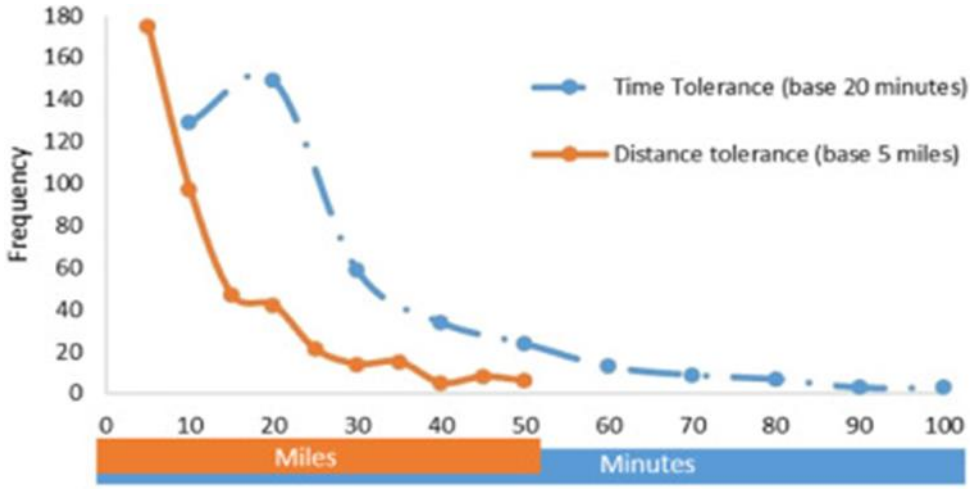


Figure 14. Courier's time and distance tolerance.

tackle all tasks during busy times and holidays crowd-shipping providers have to have a big database of couriers (Heleen B. Rai). To operate a sustainable and profitable business crowd-shipping companies must take into account all aspects that may influence occasional people's willingness to work as a courier partner.

Due to the expansion of online food delivery restaurants had to adapt the way they do business to the new market conditions in order to stay competitive in the market. While people start to order food online more often in-store dining traffic has decreased as people now prefer to eat food at home or their workplace (Li C., Mirosa M.). Those restaurants that did not respond quickly to the new market demand noticed that their profitability has declined over time (Li C., Mirosa M.). However, those businesses that joined the online food delivery service gained many new orders and customers thanks to promotions and subsidies offered by online food delivery platforms (Li C., Mirosa M.). In some cases, restaurants may notice that their profit is slowly but surely reducing with time and this can be caused by smaller subsidies provided by the online food platforms or higher commission requirements (Li C., Mirosa M.). Such online food delivery platforms as Uber Eats, Postmates, DoorDash, and GrubHub were sued during the pandemic 2020 for putting higher commission fees on restaurants, thereby, leaving no other choice for restaurants but to charge customers more to keep up with the growing commissions through higher menu prices (Distinct Today). Small businesses suffer the most as they usually do not have bargaining power over food delivery providers and if restaurants are not satisfied with

the current online food delivery provider it can be difficult or almost impossible to find another provider since food delivery platforms established a monopoly in this business (Li C., Mirosa M.). Furthermore, there were cases when undue costs were put onto small restaurants by the online food delivery platforms, for instance, when a delivery error was made couriers or restaurants were responsible for paying compensation to customers even if it was not their mistake (Li C., Mirosa M.). During the pandemic 2020 online food delivery was a vital service that helped restaurants to survive and people stay safe. However, online food delivery platforms provide many opportunities for restaurants as well (Li C., Mirosa M.). By reducing the dining area restaurants can save costs associated with space. In the UK, US, and India with the increasing popularity of ordering food online appeared such a phenomenon as a dark kitchen where the only source of money for the restaurant is online orders, therefore, restaurant's costs are reduced as there is no need in reception, dining space and wait staff anymore (Li C., Mirosa M.).

A good example of economic sustainability in crowd-shipping is the case of Uber in 2018. In 2015 Uber introduced a project called "UberRUSH" or "On-demand delivery" that was focusing on delivering packages that would make everyday living easier and saves time and money for their customers (Uber). Customers could place the request for the parcel delivery and Uber taxi drivers would accept it, come to the customer's location, pick-up the package, and deliver it to the needed destination (Uber). This service provided fast delivery with a tracking system in real-time, however, in 2018, Uber announced that they are shutting down this service due to the absence of an economic value for Uber (Uber). As a well-known fact, Uber's core service is Uber (rideshare) which allowed Uber to expand all around the world and this product brings good money to the company. Uber's other product is UberEATS that partnered with restaurants and when an order is placed in the UberEATS app partner restaurants pay 30% of the value of that order for a marketing campaign (Adam Price). And when they launched UberRUSH they quickly realized that this service was not adding any economic value to the company but instead, taxi drivers that could transport people with Uber (rideshare) or food for UberEATS were performing package delivery tasks that were not so valuable for the company (Adam Price). This

economically unsustainable business badly affected the core of Uber's businesses and the decision to shut down UberRUSH was made (Adam Price).

In Finland, the food and groceries online market had a 3% of the share of online retail before the COVID-19, and such big companies as S-Group and Kesko keep under their control about 80% of the food market (Mikko P., Arseniy S.). During the first weeks of the pandemic, the need for in-home deliveries for these companies has increased 2 to 4 times, therefore, leading to an increase in revenue (Mikko P., Arseniy S.). The biggest online food delivery platforms, Wolt and Foodora, have reported an increase in orders and their revenue as well (Mikko P., Arseniy S.). According to the forecast presented in the graph below the revenue in the Restaurant-to-Consumer delivery and Platform-to-Consumer delivery is expected to grow and in 2024 to be 85 462.8$ and 96 864.4$ respectively. The Restaurant-to-Consumer delivery includes deliveries that are made by the restaurants themselves meanwhile Platform-to-Consumer de-

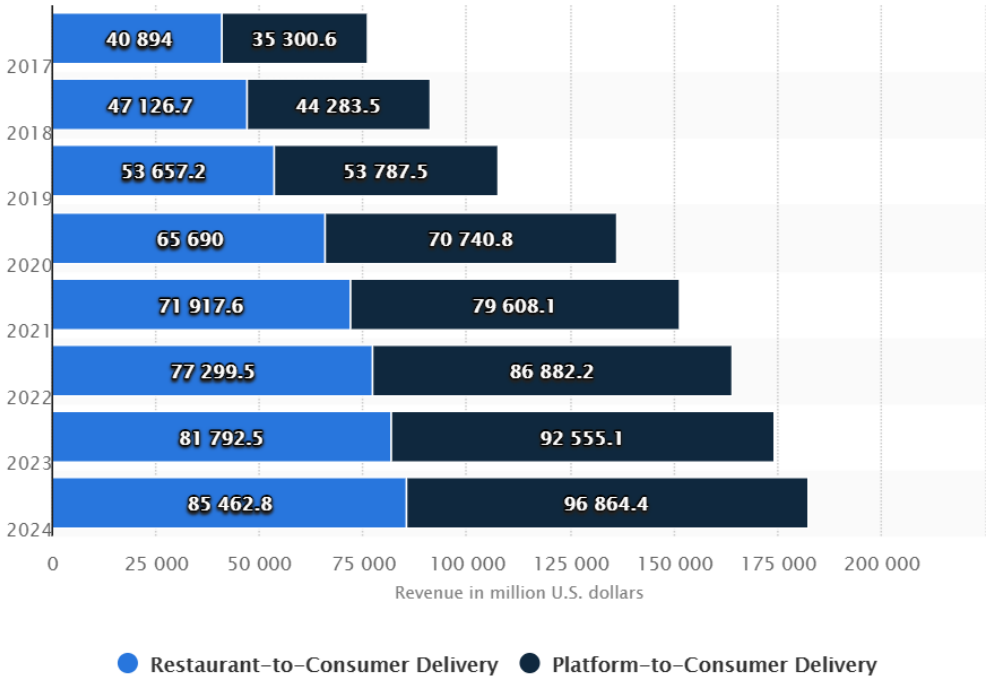


Figure 15. Revenue forecast for the Online Food Delivery market worldwide from 2017 to 2024.

livery includes deliveries made by the third-party providers that partner with restaurants. However, not for all food businesses, the pandemic 2020 had a positive impact as many restaurants were closed disrupting the food delivery networks (Mikko P.,

Arseniy S.). Different topics were brought up concerning food delivery during the pandemic 2020, however, online food delivery services have experienced strong growth.

4 Methodology

4.1 Research purpose

The data collected in this research will be used to examine the role sustainability plays in Swedish and Finnish crowd-shipping companies and how those companies manage sustainability throughout their supply chains. The research aims to answer the following questions:

1) Which crowd-shipping companies operate in Finland and Sweden?
2) How do these companies take care of ecological and social sustainability?
3) What is the role of sustainability in their marketing?

4.2 Research and data analysis methods

To understand the problem discussed in this research qualitative method was chosen as the most suitable and effective study type. Access to large volumes of data, their availability, and accessibility as well as the ability to use quick search that lists relevant sources to the topic is a key advantage of using the Internet as a research method. Nowadays, technologies are advanced enough to help researchers find the relevant paragraph in the document which contains the needed information by simply typing the word in the search folder. In this way, the typed word will be highlighted, and the researcher can see where to focus. During this research, such terms as sustainable development, sustainability, the environmental and social impact of logistics, last-mile delivery, crowd-shipping, economic responsibility, and sustainable development goals were mainly used. The research was done in English language and only a few sources were studied in Finnish. All data in this research is applied for the 2010-2021 period, however, most of the data found was up to date meaning that

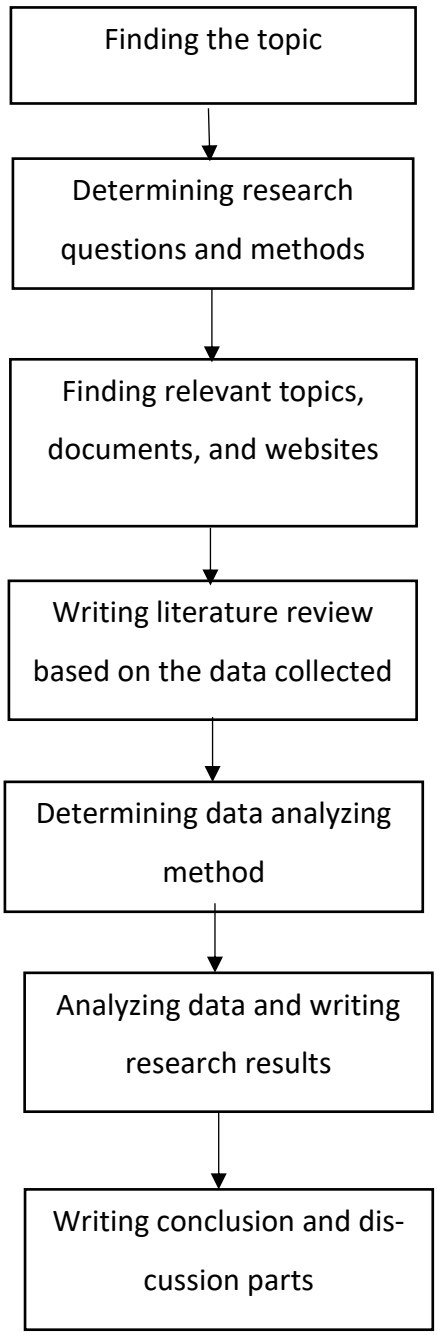
materials were posted in the time frame from 2019-2021. To be noticed, when using the Internet researchers have to be careful selecting sources that are in their opinion suitable for the research. The data collection methods used in this research are web-sites of crowd-shipping companies and literature review. During the data collection, such obstacle as unavailability of full-text materials referred to by the certain authors has occurred. Fortunately, there was an opportunity to find necessary for this re-search quotes from those unavailable works. More than half materials used were in easy access, however, a significant number of articles, books, and researches were unavailable. Not for all research questions the material was matching, for instance, difficulties occurred when searching answers for the third research question, thereby, not a lot of data is presented in that sub-chapter.

Based on the articles, books, and reports found on the internet regarding sustainabil-ity the literature review was done. Internet was used as a search engine where could be found all the materials and databases needed for writing this research. Further-more, by using websites of companies that operate in the crowd-shipping industry a comprehensive knowledge of the topic of this research was gained. By analyzing the existing data on the sustainability topic, it was possible to present all the relevant in-formation in this research and utilize it for further solution development. Reliability of the data presented can be assured as only official statements, reports, and articles were used. The existing materials were mainly sourced from the international article search (PCI) through the library of JAMK University, researches that were found on the platform of peer-reviewed literature ScienceDirect, ResearchGate network for scientists. Additionally, articles that were posted by International Labour Organiza-tion, United Nations, World Health Organization and European Commission were studied and used in this research. An example of a book that was used in this re-search is “Ending child labour, forced labour and human trafficking in the global sup-ply chain”. Material selection criteria for this research were selected based on the relevance of the topics to the subject of research.

Data analysis is the most crucial part of the research as it aims to analyze and indi-cate the most important and relevant information that will be helpful in developing the solution for the presented issue in this research. The content analysis methods

are used to summarize the information. Content analysis is applied to analyze such documented information as presented in the theory part and identify patterns through systematic data collection from books, articles, researches, websites, and reports. The material was divided in accordance to each research question and then sub-divided by the companies that were investigated in this research. Some sources that relate to social sustainability were contradictory because two different points of view were considered, for instance, self-employed people's perspective versus society view and labour market condition.

The chronology of thesis writing is presented below step by step:



4.3 Research structure

This research focuses on the sustainability of crowd-shipping companies in Finland and Sweden and aims to provide future readers the information on the role sustainability plays in crowd-shipping. The research starts with the introduction part where sustainability is linked to the logistics sector and research questions are introduced. The literature review is divided into two parts – sustainability and sustainability in crowd-shipping particularly. This was made for an easier understanding of the topic, thus, firstly, the reader gets a general idea of what is sustainability and then goes deeper into the logistics sector and how sustainability and crowd-shipping company's performance are connected. In chapter 2.1, the definition of sustainability is given and explained three pillars of sustainability. In the same chapter, the reader can get acquainted with sustainable development goals (SDGs) which will be discussed further in the thesis. It was made to give the reader background and prepare him or her for further reading.

Chapters 2.2 to 2.4 are devoted to three pillars of sustainability – social, environmental, and economic sustainability respectively. In chapter 2.2 the topic of social sustainability was raised and the main principles of it were defined. Then all SDGs which address social issues were precisely studied and linked to social sustainability. Chapter 2.3 focuses on environmental sustainability and at the end of that chapter, the reader can find information about who is responsible for administering environmental laws and regulations. Chapter 2.4 is devoted to economic sustainability. To provide a comprehensive view on the current situation of social, environmental, and economic sustainability in the world the COVID-19 and its consequences were pointed out together with real-life examples and statistics. Furthermore, the impact that COVID-19 has on the economy is presented as a diagram and explained in detail.

Chapter 3 describes the commitments of sustainability in crowd-shipping and its cornerstones, moreover, the definition of crowd-shipping delivery is given based on the work of Tho V. Le and Satish V. Ukkusuri. SDGs are explained from the logistics perspective and each SDG is discussed regarding the transportation sector. From the social point of view, some key advantages and disadvantages regarding social sustainability in crowd-shipping are exemplified . In chapter 3.2 environmental impact last-mile logistics has on the planet is presented and key points of importance of integration of environmental protection and the progress are pointed out. Chapter 3.3 explains the contribution of crowd-shipping to the labour market and improving the employment rate.

Chapter 4, methodology, contains research purpose and questions that will be answered relying on the data collected. Then research and data analysis methods are explained to make it possible for future readers to repeat the research step by step. Results are presented in chapter 5 in regard to crowd-shipping companies operating in Finland and Sweden. Conclusion and discussion parts can be found at the end of this thesis, these parts intend to wrap up this research and discuss the findings. All materials that were used during this research are listed as references.

5 Research results

This chapter answers research questions that were formulated in chapter 4.1. The results will be presented following the order in which research questions were written.

5.1 Which crowd-shipping companies operate in Finland and Sweden?

Crowd-shipping company	**Operates in**	**CEO**
CoReorient/PiggyBaggy	Finland	Harri Paloheimo

Wolt	Finland, Sweden	Miki Kuusi
Foodora	Finland, Sweden	Emanuel Pallua
Fiuge	Finland	Jukka Tarkiainen
BudBee	Finland, Sweden, Denmark, the Netherlands	Fredrik Hamilton
BagHitch	Sweden	Erik Wallin
DHL	Sweden	Oscar de Bok
Instabox	Sweden, Denmark, and Norway	Alexis Priftis
Movebybike	Sweden	Lisette Hallström
Urb-it	Sweden	Kevin Kviblad
Uber-eats	Sweden	Dara Khosrowshahi

Table 9. Finnish and Swedish crowd-shipping logistics companies.

PiggyBaggy

CoReorient is a Finnish company that was founded in 2011 by Harri Paloheimo and Heikki Waris and provides sustainable sharing and circular economy services (Jukka Ovaska). By the end of 2015, CoReorient had more than 1500 users and have delivered approximately 700-800 items (Jukka Ovaska). The company always experiments with new concepts and service development and currently CoReorient is trying to help young people find a job and involve in society by using crowdsourcing as a medium (Jukka Ovaska). Furthermore, CoReorient participates in similar projects all over Finland which enables CoReorient to get insights into the market condition and their

customers. PiggyBaggy is a beta company of CoReorient that provides crowdsourced ride-sharing services. If a person needs something to be delivered, he or she can leave on PiggyBaggy's website a delivery request where the destination, time acceptable for delivery, and desired price are defined (Jukka Ovaska). Then when people who are also registered in this system will see someone's request, they are willing to accept it if the time and road schedule suits. Drivers contact senders either by phone or through the service in order to arrange details, for instance, payment method (PiggyBaggy). PiggyBaggy insures all deliveries up to 100 euros and real names are used for registration which makes this service secure (Jukka Ovaska). This service of sharing costs of transporting goods can save money for drivers since gasoline price is continuously rising, the environment through performing consolidating deliveries, and time for all parties involved (Harri Paloheimo). In 2014, Jyväskylä City Library and Sitra were testing a new pilot project called "Bringing the library home" in the process of which the customers of the Library of Jyväskylä could order books delivered to their homes through the PiggyBaggy service for goods and return them in the same way (Sitra). This pilot project promotes sharing of goods, vehicles, facilities, and competence and allows to achieve the most value from a single asset (Sitra). The pilot project was designed to test the advantages crowd-shipping brings and what challenges may occur for this kind of service in Finland, furthermore, it will help gather data on the demand there is for crowd-shipping, environmental impact, and its economic value (Sitra).

Wolt

Wolt, a Finnish food delivery platform is a Finnish technology company that entrusts the last-mile delivery process to ordinary people (courier partners). Wolt was founded in 2014 by Miki Kuusi in Helsinki, Finland. Currently, Wolt operates in 18 countries, has over 6000 restaurant partners, 12 000 courier partners, and 3 million registered users (Wolt). In 2020 Wolt was ranked second of the FT: 1000 Europe's Fastest-Growing Companies 2020 published by the Financial Times. The growth of food delivery services made Wolt adapt its supply chain for a rapidly developing market. By making a healthy supply chain come true and seeking improvements all the time, Wolt was able to boost their business, attract new customers, and make the delivery process go more smoothly, thereby, saving time and money. Wolt's platform

helps customers to discover and buy food from the restaurants and get this food delivered to them by Wolt's couriers (Wolt Fair Platform Work). Wolt not only provides convenient service for their customer but also promotes economic opportunities for partner restaurants and couriers (Wolt). Moreover, this type of work is accessible for everyone no matter what race you are, the language you speak, or the educational background you have. The light entrepreneurship model which Wolt applies gives flexibility to their couriers as they are willing to choose where to work, when to go online and offline, when to take a break. No working contract means couriers are free to stop working temporarily or permanently by just not opening the Wolt app (Wolt Fair Platform Work).

Foodora

Foodora was founded in Munich, Germany in February 2014 then, in April 2015, it was acquired by Rocket Internet and, in September 2015, the company merged with Delivery Hero (Wikipedia). In December 2018, Takeaway (the Dutch group) bought Delivery Hero, and nowadays, Delivery Hero is still using the Foodora brand to operate in Sweden, Finland, and Norway (Wikipedia). Foodora is a food delivery platform that outsources food delivery from a restaurant to the customer's location to their couriers but unlike Wolt Foodora has a slightly different system. While Wolt couriers can start working any time by simply swiping the button "go online" Foodora couriers need to book a working shift to start delivering (Faizan Ahmad). Furthermore, depending on the contract that couriers sign with Foodora he or she has a fixed number of hours that they are allowed to take per week. Foodora pays fixed 7 euros per hour to the couriers regardless of the number of deliveries they deliver, 2.20 euros as a starting amount, and compensation based on a distance (Faizan Ahmad).

Fiuge

ICarryIt, or as it is called nowadays Fiuge, is a Finnish startup company that focuses on crowd-shipping services and intends to make transport solutions easier, cheaper, and more sustainable (Fiuge). The ELY Centres for Economic Development, Transport and the Environment donated 350 000 euros to the company, and this money

covered half of the costs spent on project development and will help to expand abroad starting with Helsinki, Kirkkonummi, and Lappeenranta (Yle). Fiuge is an app-based service that is very similar to Uber ride-sharing service or Wolt meaning that couriers are freelancers that use their own vehicles and insurance won't be provided to them as they are not fully employed by the company, however, the business model of this service differs from Uber and Wolt (Yle). Fiuge provides door-to-door, same day delivery service of any goods be it an item of new furniture, parcel, or shopping bag (Fiuge). The Fiuge app allows customers to set the price they are willing to pay for the delivery, the app will also give a piece of advice about what price is better to set for the particular item, moreover, the app sends notifications when the package is picked-up and if needed customers can track and contact couriers (Fuige). Payment is transferred (cash or bank transfer) only when the package is delivered and Fiuge promises to deliver most of the packages within one hour and also offers insurance for transported goods which makes this service convenient for the customers (Fiuge).

BudBee

Budbee is a technology company founded in Stockholm, Sweden that has revolutionized last-mile delivery service for e-commerce and nowadays serves people in four countries: Finland, Sweden, Denmark, and the Netherlands (Budbee). Budbee commits to make the customer's experience the most delightful when shopping online, deliveries are made either door-to-door or to the collection point called Budbee box, so the customer can pick-up the parcel from there (Budbee). If using a Budbee box service, the app sends a notification or a text message when the parcel is on its way to Budbee box which is nearest to the customer and when it is ready to pick-up (Budbee). When a parcel is placed in the Budbee box, the customer gets a pin code needed to open the box. If a customer wants door-to-door service, by using the app he or she should specify where and at what time the parcel needs to be delivered and Budbee courier will bring it to the door (Budbee). If for some reason the customer wants to return the order then, again, through Budbee app customer should book a time when the courier can come and take the parcel, no need to return it by yourself (Budbee). A tracking system that allows customers to track their packages in real-time makes the Budbee service more convenient and reliable

(Budbee). There is a customer support service that can answer any questions and this support service can be reached through the Budbee app or by using the link that Budbee sends to customers (Budbee). Since 2017 Budbee made more than 11 million deliveries and 98% of those deliveries were delivered on time (Budbee).

BagHitch

BagHitch is a Swedish company that matches drivers with empty vehicles that are already on the road or planning a trip and people who need something to be delivered to their doors (BahHitch). In Sweden there are 500 000 bulky items for sale on marketplaces and online auction houses, however, many of those items are not sold due to lack of transportation and difficulties with the arrangement of transportation of online purchases with traditional companies (BahHitch). BagHitch performs small to bulky delivery door to door and provides insurance for transported items as well as a safe payment system. By using sharing economy all parties can benefit from the usage of such a platform: people get their items delivered to the point of destination, drivers get paid for performing the delivery, thereby, lower their transportation costs (BahHitch). Additionally, BagHitch uses a rating system to guarantee the system is reliable.

DHL Sweden

DHL was founded in the U.S. in 1969 by Adrian Dalsey, Robert Lynn, and Larry Hillblom and in the late 19s expanded worldwide (DHL Sweden). The company's name originally came from the combination of founders' surname initials: Dalsey, Hillblom, and Larry (Wikipedia). Now DHL is the biggest logistics company that operates in over 220 countries, hires 380 000 workers, and delivers over 1.5 billion parcels per year (DHL Sweden). DHL Sweden is part of Deutsche Post DHL world's leading logistics and mail group and provides a wide spectrum of services such as DHL Express, DHL Parcel, DHL Global Forwarding, DHL Freight, DHL Supply Chain, Deutsche Post International (DHL Sweden). In 2013 DHL announced MyWays platform to improve the last-mile delivery service of Stockholm and outsource it to residents of the city (DHL). Customers who want their packages to be delivered to their doors after ordering the item online have to specify where they want the package to be delivered, a suitable time and fee that they are willing to pay for the delivery, then people

who are going the same direction and would like to transport the package and earn some money connect though the MyWays app with the individual whose package they want to deliver (DHL). The system works in an easy way: when the package has arrived at the DHL's collection location it becomes visible in MyWays app to everyone and once the deliverer is defined, he or she can agree on details and transportation fee through the app (DHL). MyWays aims not only to contribute to the improvement of the environment but also to social and economic aspects and as states on the DHL website, the deliveries were mostly performed by students which is being a great way for them to earn extra money by delivering packages along their daily trip (DHL).

Instabox

Instabow is a Swedish logistics start-up company that was founded by Alexis Priftis, Johan Lundin, and Staffan Gabrielsson in 2015 (Instabox). It has started with delivering pharmacy packages to the smart lockers located in Stockholm and nowadays Instabox delivers over a million packaging per month and partners with many online retailers such as H&M, Boozt, Ikea, and much more (Instabox). Customers when shopping online at a retailer store can choose an option to pay through Instabox, then they will get a link where they can track the parcel as well as a delivery code which is used when collecting the parcel at one of the Instabox smart lockers (Instabox). The service is convenient, fast, and sustainable, customers can pick-up their parcel on the way to work or while walking in the city center, or if for some reasons customer can not pick it up by him- or herself the code can be sent to a friend (Instabox). Instabox promotes consolidated deliveries which help to reduce the environmental impact of transportation and, moreover, in 2021 Instabox raised 90 million dollars for developing new technologies that will allow the company to go fossil-free and for the expansion outside of Sweden (Instabox). Due to COVID-19 e-commerce market is bursting and Instabox intends to adjust its service to the new market conditions (Instabox).

Movebybike

A Swedish cycle logistics company Movebybike was founded in 2012 by Jeppe Larsen and Dmitri Fedortchenko but started to operate in 2014 (Velove). At that time the

company was delivering only furniture, however, later the company had its first big customer, Gudrun Sjöden, which allowed Movebybike to grow in scale (Velove). When the focus area of the company shifted from delivering furniture to restocking the clothing shops for Gudrun Sjöden, Movebybike was in need of a new transport solution that will be able to operate in the traffic of the Stockholm and the loading of goods had to be fast and easy (Velove). The co-founder of Velove gave the idea to Movebybike founders to use cargo bikes that are able to carry goods with a weight of around 300 kg (Movebybike). Nowadays, Movebybike delivers furniture, parcels, food for catering services, and also restock shops. Movebybike leases cargo bike from Armadillo and the first electric cargo bike the company got in 2017, and already in 2018 Movebybike got its second electric vehicle from Armadillo – semi-trailer (Velove). Today the company has 14 electric cargo bikes and 50 coworkers (Movebybike).

Urb-it

Urb-it is an app-based platform that was founded in Stockholm, Sweden in 2014 and, currently, operates in 3 cities and employs over 1500 couriers (Urb-it). Customers have to book the delivery and Urb-it's couriers will deliver it within the same day and in the most sustainable way (Urb-it). Usually, the delivery is made by foot, however, sometimes to reduce the delivery time the courier can use public transport, additionally, Urb-it fleet consists of bikes and electric cargo bikes which help to handle the big orders (Urb-it). For a more convenient delivery service through Urb-it app customers can communicate with their courier and agreed on a delivery time that is more suitable for them (Urb-it). Urb-it can deliver anything from the grocery, flowers, retail stores, and so on to the customer's door in a hassle-free way (Urb-it).

Uber-eats

Uber-eats was launched in 2014 by Uber as an online food delivery platform that crowdsources delivery of food to ordinary people or couriers (Uber). Customers can order their favorite meals through the Uber-eats app and get them delivered to the door by one of the Uber-eats couriers. Restaurants can also benefit from the partnership with Uber-eats as if the food is featured in the app it can reach a large audience and attract new customers (Uber). As for now, Uber-eats operates in 45 countries

and the deliveries are mostly made by car, bike, or scooter (Uber-eats). Uber-eats provides access to flexible earnings and working schedule, thus, couriers can choose when to start working, how long to work, and when to take breaks (Uber). No less attractive option for couriers is “Instant Pay” which allows withdrawing the money up to 5 times a day (Uber). The company commits to tackle the environmental issues to prevent climate change while ensuring the safety of couriers on the road (Uber).

5.2 How do these companies take care of ecological and social sustainability?

PiggyBaggy

PiggyBaggy platform allows to decrease the number of cars on the road, thus, reduces transportation costs, and, thereby, lowers the emission of CO2 and pollutions that come from vehicles (Jukka Ovaska). PiggyBaggy utilizes existing vehicles and public transport in order to make delivery service environmentally friendly and sustainable (PiggyBaggy). An easy-to-use app connects the locals that want something to be delivered and those who are willing to transport goods along their daily route, thereby, drivers can benefit from sharing the transportation costs and others get a convenient and relatively cheap service (PiggyBaggy). With the fuel prices continuously rising the drivers are able to save money or even earn some extra and for both parties involved PiggyBaggy service guarantees the safety of payment transactions (PiggyBaggy). Youth, elderly or unemployed people are the groups that sometimes due to transportation-related factors can not achieve some facilities, and PiggyBaggy, in its turn, can help those groups of people to get what they need for a low price and with care for the environment (Aisling Mc Ginn). Due to high costs for the public sector libraries could not provide door-to-door service, however, through PiggyBaggy service people with disabilities or elderly people can have books delivered to their homes and with relatively low costs for both customers and service provider (Aisling Mc Ginn).

Wolt

Food delivery company Wolt promises to compensate all of their CO2 emissions by supporting carbon offset projects that are certified and recognized (Wolt). Wolt partners with the South Pole which works with leading brands and companies all over the world for achieving low-carbon reality (Wolt). By working together Wolt and the South Pole were able to evaluate the amount of greenhouse gas emissions including methane, carbon dioxide emissions, and nitrous oxide that each type of vehicle operated by Wolt's couriers generates (Wolt). Following the information on Wolt's website car generates 170 grams of carbon emissions per kilometer and it is the most environment polluting mode of transport used by Wolt's couriers, then with 100 grams per kilometer comes scooters and e-scooters, and due to heavier breathing, even delivery by bike can emit 10 grams per kilometer (Wolt). In case when Wolt does not know what type of transport courier is using they will classify it as a car in order to make sure that every gram of greenhouse gas emission is compensated (Wolt). Every quarter Wolt calculates how much greenhouse gas emissions emitted in the atmosphere and buy carbon-credits from its partner, the South Pole, after that they together choose the projects where to invest these credits and currently Wolt support two projects, one in Colombia called "Vichada forest Restoration" and another one in Brazil "Envira Amazonia Tropical Forest Conservation" (Wolt). So far Wolt cut back 170 million tons of CO2, protected or restored 55 000 square kilometers of land, and developed approximately 700 projects to contribute positively to the environment (Wolt). Furthermore, by including in a restaurant selection eco-friendly options and restaurants that provide healthy food Wolt contributes to responsible consumption which is a crucial part of sustainable development for food delivery crowd-shipping companies (Wolt). Through the Wolt app customers can choose restaurants that provide healthy meals or vegan options or choose only those restaurants that offer eco-packages (Wolt).

Wolt's couriers are facing inequalities in social protection, meaning that they do not have sick leaves, unemployment benefits, and employment contract, however, Wolt provides free accident insurance and this, in its turn, puts the couriers in a difficult position being considered to be employees (Wolt). Wolt provides an opportunity for both underemployed and unemployed people to accessible earnings regardless of

their race, gender or educational background, or language skills removing inequalities from the society (Wolt). For couriers being self-employed means to be flexible with their schedule and earnings, thus, for some, it can be a full-time job and for others, it can be a good chance to earn supplementary money in addition to their main job (Wolt). According to Wolt Fair Platform Work 27% of their couriers are students who want to finance their studies, 16,8% are those who want to earn extra money but already have a main job, and a significant part of couriers, 30.8%, are working full time at Wolt. The absence of a boss who tells Wolt couriers what to do gives freedom to couriers to combine their personal life, studies, or daily routines with their work, and this is highly appreciated by couriers (Wolt). Referring to the satisfaction survey conducted by Wolt the majority (85.3%) of couriers like working at Wolt because of the flexibility it provides and 76.6% are either very satisfied or satisfied with their partnership with Wolt (Wolt Fair Platform Work). Wolt has made a sketch of a policy approach that is needed to guarantee the flexibility of such platforms in the future and there are some of the elements presented in Wolt Fair Platform Work. The legal status of modern self-employment should be clearly defined by the EU Commission, social protection should be accessible for all workers, regardless of the type of work, platforms should not be fined for providing insurance to self-employed workers, and platforms should be transparent in regard to their self-employed workers (Wolt). Wolt commits to ensuring social sustainability and through Wolt Fair Platform Work document they show its commitment. During pandemic 2019 Wolt tried to support its restaurant partners through a ”restaurant support package” where it says that Wolt for the time of pandemic removes commission for orders that are self-picked up by customers in some of their markets and launched give-back campaigns in others (Wolt). Regarding Wolt couriers the Covid-19 Partner Support Program was introduced and it was intended to provide economical support for those couriers who were put into mandatory quarantine or diagnosed with Covid-19 (Wolt). With care to their customers and couriers during pandemic Wolt was providing contactless delivery service to minimize human contact and, moreover, produced 10 000 bottles of sanitizers and sent it to their restaurant partners and couriers (Wolt). All recommendations that were made by the World Health Organization regarding actions to prevent the spread of coronavirus Wolt was sending to its courier partners as well as a reminder saying that Wolt couriers take responsibility for themselves

when making a decision either to work or not, Wolt does not want to put pressure on anyone if they are uncomfortable with working during pandemic (Wolt).

Foodora

Foodora, Wolt's competitor in Finland, commits to zero-emission delivery by bike and partners with restaurants that shares the same value regarding sustainability. In 2018, Foodora introduced a sustainability program that is focusing on recyclable packaging, the achievement of food transparency, and the reduction of waste (Markets Insider). Food transparency is expressed by providing customers the ingredient information on every meal they can order in the Foodora app, therefore, customers can contribute to sustainable food suppliers by choosing the meal that consists of local or ethically sourced ingredients (Market Insider). In Canada, Foodora works together with 20 restaurants and provides option "opt-in" and "opt-out" of cutlery meaning that customers can choose whether they need cutleries or not, thereby, contributing to the waste reduction goal set by Foodora (Market Insider). The company is providing eco-friendly and disposable packaging and, in 2018, Foodora was trying to replace plastic packaging and cutleries with cardboard packaging and cutleries made of crystallized polylactic acid (Market Insider). As well as Wolt's case, Foodora couriers are considered to be self-employed people and they are lacking social protection, insurance, and occupational health.

Fiuge

Fiuge, or ICarryIt, is relatively new in crowd-shipping service and started to operate only in 2019 yet can't estimate their environmental impact, however, there may be a slight increase in traffic because people instead of picking parcels by themselves will leave it up to Fiuge (Yle). Jukka Tarkainen, CEO of Fuige, believes that deliverers will use bikes as a transport mode or work on foot when the distance between the pick-up point and customer's location is short (Yle). Nevertheless, Fiuge puts environmental sustainability at the core of its business and as mentioned on Fiuge website the company's couriers use small vehicles which generate less greenhouse gas emissions than big trucks (Fiuge). The algorithm of the system consolidates deliveries so the courier can deliver multiple parcels along their trip, therefore, positively contributing to the environment (Yle). Fiuge uses a virtual platform as a big central warehouse,

thereby, making the whole delivery process smoother and more environmentally friendly (Fiuge). In regard to social sustainability improvement Fiuge guarantees same day delivery service and provides a tracking system that allows customers to track their deliveries in real-time, making this service reliable (Fiuge). Moreover, anytime customers can contact the courier by phone or through the system and payment is transferred only when the parcel is delivered which guarantee safety for customers (Fiuge). Although this service is secure and reliable there is an ongoing debate regarding employee's rights and working conditions. According to the CEO Jukka Tarkainen couriers are self-employed and they can choose working hours by themselves, meaning that they can work either full time or few hours per week or even a month (Yle). He also said that he hopes couriers will work by bike or foot over short distances to reduce environmental impact, however, in this case working conditions of couriers are being questioned (Yle). Anyone can apply to become a Fiuge courier regardless of their race, gender, or religion (Yle). As couriers are self-employed people the company can't provide them with insurance and due to payroll tax couriers are paid way less than normally employed people would get (Yle).

Budbee

Budbee offers the greenest way for e-commerce delivery service and it is the most environmentally friendly last-mile partner in Europe (Budbee). The company commits to long-run goals towards sustainable development and seeks continuous improvement of their service even if it means higher costs for implementing projects which are beneficial for the environment (Budbee). In August 2020 Budbee introduced the new terminal which is equipped with solar panels covering over 80% of the terminal's roof (Budbee). Those solar panels are able to produce approximately 232 000 kWh of electricity per year and this is more than enough not only for the terminal to operate but to charge all the electric vehicles operated by couriers (Budbee). Budbee supports its partners on their way to operate 100% fossil-free cars and for this purpose Budbee installed fueling stations that are fossil-free right at the terminal, furthermore, the company offers discounts for their partners for fossil-free fuel (Budbee). In fact, Budbee is very ambitious and it set a target to become 100% fossil-free by 2022, and in 2020 the company announced that all linehaul fleet in Sweden has to turn into 100% fossil-free fleet (Budbee). Another

focus area of the company is delivery by bike and through cooperation with many partners, Budbee was able to increase its bike fleet (Budbee). Through the partnership with ZeroMission Budbee compensates all emissions that were emitted during deliveries by investing in projects that address climate change and social issues, for instance, the Mikoko Pamoja Mangrove (Budbee). Starting with 2019 all company's emissions are compensated with 110% (Budbee). As stated on Budbee's website people are the most valuable and vital part of the company, thus, Budbee offers to its employees a good working condition and work environment which is safe (Budbee). The company tries to diminish inequalities by creating a work environment where all employees are treated fairly regardless of their age, religion, gender, or disability (Budbee).

BagHitch

The same concept as PiggyBaggy uses was applied by the Swedish company BagHitch which was able to save 62 tons of CO2 through smarter transportation and deliveries that were performed along the planned road trip (BagHitch). Additionally, BagHitch allows drivers to lower their traveling costs, and people who need something to be delivered to their doors get an item for a low price (BagHitch). Through improved vehicle capacity BagHitch helps to tackle the issue with a marketplace for transportation and in 70% of cases, this service is used by marketplaces and auction houses (BagHitch). BagHitch does not use any external websites or service providers, therefore, the system works effectively, payments are secure and guaranteed, the information provided is trustworthy. Also, BagHitch has a rating system which makes it useful for users to estimate their experience with BagHitch and, thus, provide information for future users about how good this service is (BagHitch).

DHL Sweden

Due to the growth of e-commerce DHL also established goals that are needed to be met by the end of 2025 regarding environmental protection and those goals are included in DHL's Code of Conduct, their Supplier Code of Conduct, and Environmental and Energy Policy (DHL's Sustainability Report 2019). DHL and its partners operate according to 11th (sustainable cities and communities), 13th (climate action), and 17th (partnership for the goals) SDGs and encourage the shift towards the use of

alternative fuels and energies, thereby, contributing to CO2 emissions reduction (DHL's Sustainability Report 2019). The company aims to improve energy and fuel efficiency by 2025 by 50% compared to the set baseline of 2007 and additionally DHL wants to achieve a zero-emission supply chain by 2050 (DHL's Sustainability Report 2019). Furthermore, DHL provides GoGreen Certified Trainings for their employees, this training gives a basic knowledge of environmental protection and allows employees to assist the company to achieve its environmental targets in their work routine (DHL's Sustainability Report 2019). DHL through its partners also participates in forest restoration projects to reduce greenhouse gas emissions and, thereby, mitigate global warming (DHL's Sustainability Report 2019). In order to reduce air pollution, the company is replacing its fuel vehicles with electric ones and as mentioned in DHL's sustainability report 2019 by using electric cargo bikes they are able to save approximately 8 tonnes of CO2 emissions each year. In figure 16 are illustrated the company's mission for 2050 and targets for 2025. Continuous optimization of delivery routes and pick-ups is supported by increased attention to delivery by bike, foot, and the use of e-vehicles (DHL's Sustainability Report 2019). DHL tracks all wastes throughout its supply chain and disposes it under environmental management systems (DHL's Sustainability Report 2019). Moreover, DHL provides recyclable and reusable packaging and shares its sustainable solutions with customers (DHL's Sustainability Report 2019). To protect biodiversity the company is working together with the UN's Convention on Biological Diversity and is involved in projects to stop wildlife

trade as well as raise awareness of this issue among employees (DHL's Sustainability Report 2019).

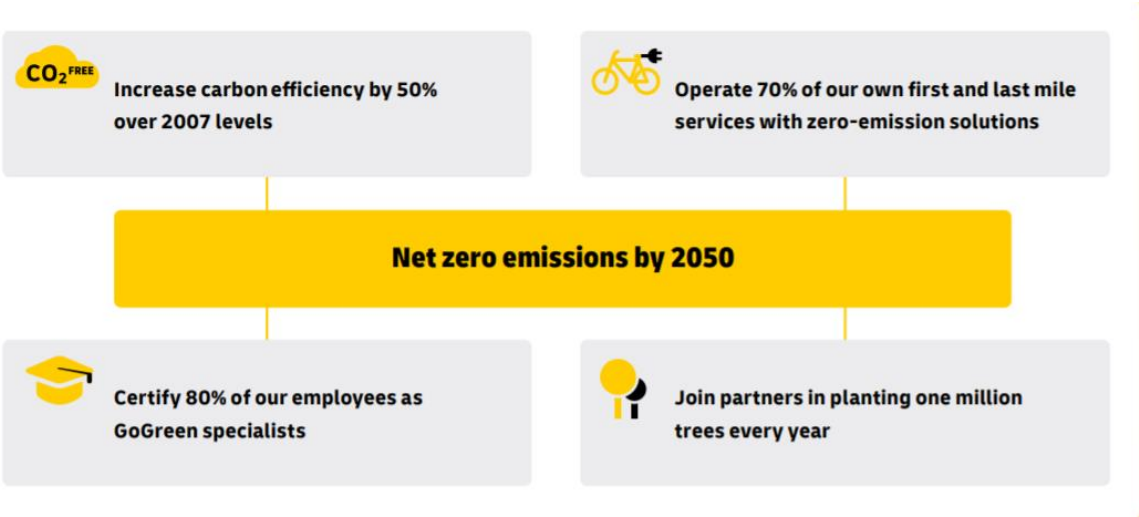


Figure 16. DHL's mission for 2050 and targets for 2025.

DHL in its sustainability report 2019 reveals the data about how the company cares about social sustainability. DHL has a list of policies that help to apply principles of social sustainability into the core principles of the company, for instance, The Employee Relations Forum measures KPIs to guarantee that human rights are not violated within the DHL (DHL's Sustainability Report 2019). The company also cares about diversity and there is The Diversity Council established to improve diversity management and, additionally, there is The Sustainability Advisors Council that gives recommendations and external expertise (DHL's Sustainability Report 2019). These policies promote occupational health and safety, employee development and engagement, and, furthermore, the company operates in accordance with Declaration on Fundamental Principles and Rights at Work of the International Labour Organization in order to ensure that human rights are respected (DHL's Sustainability Report 2019). By the end of 2025, DHL wants to achieve 80% employee engagement rate and through measures and KPIs the company is able to track the progress (DHL's Sustainability Report 2019). DHL provides a variety of learning paths for their employees and by the end of 2020 targets to certify 80% of their employees, during 2019 346 000 employees have participated in Certified training courses (DHL's Sustainability Report 2019). To secure occupational safety DHL measures the accident rate at work and aims to reduce injuries and accidents at work by raising awareness among

employees (DHL's Sustainability Report 2019). Moreover, DHL tries to reduce inequalities by providing equal opportunities for both men and women, and by 2025 the company aims to increase the engagement of women in management by 30% (DHL's Sustainability Report 2019). As states in DHL's Sustainability Report 2019 the company also offers work opportunities for people with mental and physical disabilities. For elderly people, DHL ensures transactions into retirement which is trouble proof and it is financed through the demographic fund, working time accounts, and employer-funded top-up (DHL's Sustainability Report 2019). Even during hard times as COVID-19, the company was able to keep its workforce and in 2019 the number of DHL's employees was 546 924 people comparing it to 2018 when the number of em-

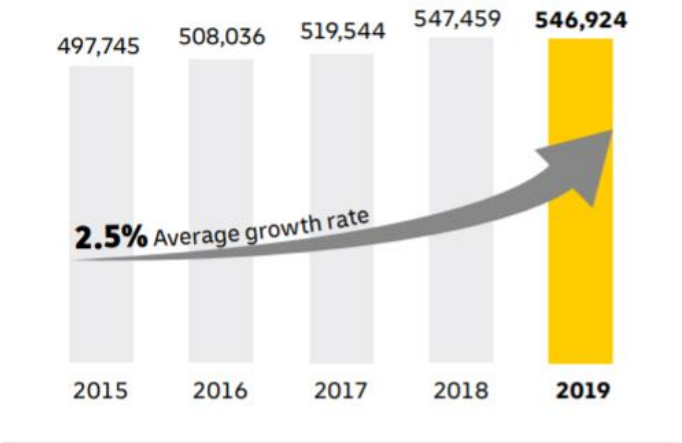


Figure 17. Workforce growth rate.

ployees was 547 459 people (DHL's Sustainability Report 2019). In graph 17 the number of employees directly working for DHL is illustrated. Comparing to the baseline of 2015 DHL's average growth rate is 2.5%. To ensure the health and safety of its employees DHL operates in accordance to 4th (Quality education), 8th (Decent work and economic growth), and 17th (partnerships for the goals) sustainable development goals of United Nations (DHL's Sustainability Report 2019).

Instabox

Instabox commits to be environmentally friendly and to do so the company supports its partners in the transition to the use of fossil-free vehicles and as for now four of their partners provide completely fossil-free deliveries: Adlibris, Apoteket, H&M, and Bubbleroom (Instabox). Instabox installed fueling stations that are fossil-free at their terminals in order to make the transition to the fossil-free state possible (Instabox).

Although the company revealed that sometimes they use diesel to fuel the vehicles, they compensate it by participating in carbon offset projects making their deliveries 100% emission-free (Instabox). Recently Instabox introduced the new project called Instabike where deliveries are made by bikes. The company works closely with certified partners to tackle the environmental issues and guarantee that deliveries are emission-free, in those regions where Instabox can not guarantee fossil-free delivery the company does not offer its service to customers (Instabox). Furthermore, Instabox consolidates deliveries and it results in a service that is not only beneficial for the company, and fast and convenient for customers but also environmentally sustainable and aims to reduce CO2 emissions (Instabox). During the COVID-19 Instabox guaranteed the contactless delivery service and sometimes even provided home delivery. To make the service more convenient for the customers the company offered an option for those who have symptoms to extend the time parcel is stored at one of the Instabox locations (Instabox). To prevent the spread of disease all Instabox's employees followed the recommendations of the Public Health Agency, hand hygiene and social distancing were respected (Instabox).

Movebybike

Transportation in urban areas is facing issues regarding logistics and environmental impact, Movebybike offers a sustainable and cost-efficient solution for transporting goods (Movebybike). Instead of using big trucks that generate a lot of greenhouse gas emissions, Movebybike uses electro vehicles to deliver the goods. Moreover, the electric cargo bikes the company uses are safe and silent, thereby, it helps to reduce road incidences and avoid noise pollution. In order to operate in Stockholm where the streets are tiny, the Movebybike had to adapt its vehicles and as a result, the vehicles are small and do not contribute to traffic jams (Movebybike). As mentioned on the company's webpage Movebybike is now the greenest transportation service in Sweden. Furthermore, Movebybike offers its employees warm clothing for work and provides e-bikes, thus, no need to have your own electric bike to start working at Movebybike (Movebybike). Also, the company offers many benefits to its employees and provides insurance, additionally, those who are 25+ are getting pensions (Movebybike). Movebybike is a discrimination-free company and each employee is treated fairly and valued, support team aims not only to provide the best support for

the riders but also provide the best experience to their customers through their platform (Movebybike).

Urb-it

By performing deliveries on foot, by bike, or by public transport Urb-it provides a service that is eco-friendly and relatively cheap (Urb-it). This kind of delivery does not generate CO2 emissions in the atmosphere and contributes to the reduction of traffic jams on the road, thereby, making the city life better and more sustainable (Urb-it). Partnership with ”Bra Miljöval” a Swedish organization that is environmentally certified allows Urb-it to tackle environmental problems more intensively (Urb-it). Payments are secured and done without any external sites which allowed the Urb-it app to score 4.92 out of 5 in customer experience (Urb-it). Urb-it’s couriers are free to choose when they want to work and where which gives them flexibility and the opportunity to earn some extra-money (Urb-it). The company also provides social protection for their couriers as well as sick leaves, pensions, and holiday pay, thus, social rights are respected.

Uber-eats

The company intends to become a zero-emission platform by 2040 and to achieve this goal Uber-eats will use its Green Future program to make the transition from fossil-fueled vehicles to electric vehicles possible (Uber). To support the movement towards sustainable and clean cities customers can request a delivery that will be made by an electric vehicle positively contributing to the environment (Uber). Through the partnership with electric vehicle rental fleets, vehicle manufacturers, charging network providers Uber-eats ensures that couriers will have access to more sustainable options (Uber). Furthermore, to reduce the plastic waste Uber-eats’ restaurant partners will no longer include the cutleries in the order if the customer needs cutleries he or she has to add them manually (Emilie Boman). Moreover, Uber-eats’ app added a new feature “allergy-friendly” by using this filter customers can choose restaurants that offer allergy-free options and through the app communicate meal options with the restaurants (Emilie Boman). Uber-eats’ couriers are free to choose when and how long to work, and the “Instant Pay” option allows couriers who are in need of money to withdraw the cash from their app account 5 times per day (Uber-

eats). The app also can provide the navigation system if the courier does not know a route to the destination point (customer location), thereby, all deliveries are made in a smooth way, and routes are optimized (Uber).

	Environmental sustainability								
	Utilaze already existing vehicles/pablic transport	Lower the emission of CO2	Participate in carbon offset projects	Contribute to responsible consumption	Promote consolidated deliveries	Transition to fossil free state	Recyclable and reusable packaging	Complying with environmental laws	Tackle waste problem
PiggyBaggy	✓	✓			✓			✓	
Wolt		✓	✓	✓	✓		✓	✓	✓
Foodora		✓		✓	✓		✓	✓	✓
Fiuge		✓			✓			✓	
Budbee		✓	✓		✓	✓		✓	
BagHitch	✓	✓			✓			✓	
DHL Sweden		✓	✓		✓	✓	✓	✓	✓
Instabox		✓	✓		✓	✓		✓	
Movebybike		✓			✓	✓		✓	
Urb-it	✓	✓			✓	✓		✓	
Uber-eats		✓		✓	✓	✓		✓	

Figure 18. Environmental sustainability findings.

	Social sustainability										
	Safety of payment transactions	Shared transportation costs	Relatively cheap service	Insurance for employees	Social protection for employees	Occupational health	Financial support during the pandemic	Flexible earnings	Law entrance barriers	Try to diminish inequalities	Employee's trainings
PiggyBaggy	✓	✓	✓					✓	✓		
Wolt	✓			✓			✓	✓	✓	✓	
Foodora	✓							✓	✓		
Fiuge	✓		✓					✓	✓	✓	
Budbee	✓									✓	
BagHitch	✓	✓	✓					✓	✓		
DHL Sweden	✓			✓	✓	✓				✓	✓
Instabox	✓										
Movebybike	✓		✓	✓	✓					✓	
Urb-it	✓		✓		✓	✓		✓	✓		
Uber-eats	✓							✓	✓		

Figure 19. Social sustainability findings.

5.3 What is the role of sustainability in the marketing of these crowd-shipping companies?

As was described earlier in previous chapters nowadays people pay more attention to sustainable development than before and environment-friendly purchases, as well as green marketing, have become popular (Zhang X., Dong F.). 33% of customers consider brands as the ones who have to take responsibility for the environment and

expect companies to address social and environmental issues in their brands (Olando, 2020). Zhang X. and Dong F. in their research work defined green marketing and it as follows: it is all marketing activities that companies design for customers with the goal to minimize the impact their products and services have on the environment. The percentage of customers who are more likely to choose a brand that is eco-friendly equals to 61% (Olando, 2020), and due to growing interest in the protection of society and the environment, many companies shifted away from the production of products that are harmful to both environment and human health to the production of eco-friendly and socially sustainable ones (Zhang X., Dong F.). Effective green marketing for companies means being honest with customers and committed to do what you promised to accomplish while being accountable for all actions you do in order to be environmentally sustainable (Shazia Bukhari). For instance, setting long-term goals such as switching to recyclable packaging can demand short-term loss in order to adopt new practices and companies should be honest with themselves and customers whether they can or can not adopt new sustainable policies (Olando, 2020). Companies have to be accountable for every activity which is harmful to society or the environment and try to achieve sustainable development by focusing on the whole company's performance not on one particular activity to be sustainable, therefore, consistency is the key element to avoid negative social media news that can damage company's reputation (Olando, 2020). Furthermore, companies that are doing green campaigns have to educate their customers, therefore, letting them know why environmental and social sustainability matter (Shazia Bukhari). In chapter 2.4 was said that access to information and participation in decision-making processes related to environmental problems are being part of good governance and that is the reason why effective green marketing should respect customer's voices and give them an opportunity to participate in environmental actions. Shazia Bukhari revealed 3 types of green marketing: first, ads that highlight environmentally and socially sustainable service or product, therefore, promoting a healthy lifestyle, second, ads that represent environmental responsibility of a company and, last but not least, ads that provide customers a clear picture of how company's product or service relates to environmental protection (Shazia Bukhari). It is important to remember that marketing can have carbon footprints, thus, if doing printed campaigns, flyers, or

billboards company beforehand should make sure that these printed materials are recyclable and do not harm the environment (Olando, 2020). Nowadays, everyone has access to the Internet and digital marketing should be in priority because this allows companies to minimize their environmental impact and reach a greater audience (Olando, 2020). Moreover, companies can increase the authenticity and value of their brand which then will help to attract new loyal customers by providing quality and relevant content that is tailoring the message to customers (Olando, 2020). Each company investigated in this research mentions sustainability on its website and promises to deliver service that is customer-oriented and eco-friendly.

PiggyBaggy

Due to growing prices for gasoline PiggyBaggy will be able to expand all over the world by providing service that is beneficial for customers and drivers (Aisling Mc Ginn). And as the global focus on sustainability continues raising PiggyBaggy will be able to attract users of this service by providing a sustainable solution for last-mile delivery (PiggyBaggy). PiggyBaggy is part of the EU growth strategy for the coming decade and has participated in a project called Horizon 2020 SMA and in 2014 relieved public findings equal to 50 000 euros (Aisling Mc Ginn). Partnership with delivery management companies and e-commerce allows PiggyBaggy to increase demand for environmentally, socially and economically sustainable effects (PiggyBaggy). Currently, 2476 users are registered in PiggyBaggy and 1204 deliveries are performed (PiggyBaggy).

Wolt

By offering a service that is affordable, quick, and reliable Wolt was able to expand globally within 5 years and now it works together with 30 000 restaurants and partners in 23 different countries (Wolt). Restaurant when makes a decision to join Wolt can boost their monthly sales by 10-15% more and, furthermore, restaurants can get help from Wolt to order eco-friendly packaging (Wolt). Through the promotion of restaurants that offer healthy options for their customers, Wolt promotes environmental sustainability to their customers, making them act

responsibly towards the environment (Wolt). Wolt aims to build the digital version of shopping malls and to achieve this goal in 2020 Wolt added retail and grocery delivery service into Wolt system (Wolt). Wolt is a long-term oriented company that targets to operate sustainable service and make a profit which allows the company to invest in service improvement and to be around for its employees, partners, and customers (Wolt). The company is building trustworthy relationships with employees through its commitment to them to be a socially sustainable company that respects human rights, ensures diversity, and treats all employees fairly (Wolt). For couriers, Wolt commits to be a platform that is sustainable and fair, for restaurants it promises to be a long-term partner, for customers, the company commits to provide excellent service, and for society, Wolt commits to be the company that cares about the environment (Wolt).

Fiuge

By ensuring social and economic sustainability Fiuge contributes to the labour market and provides many job opportunities for couriers as well as customer care (ICarryIt). Although due to its flexibility this service is very attractive for those who want to become Fiuge courier, working conditions and absence of insurance still remain a problem for the labour market that has to be solved (ICarryIt). However, Fiuge takes responsibility for improving the social issues their couriers are facing as well as Wolt and Foodora do. As mentioned on its website, with Fiuge last-mile transportation is environmentally friendly and service is customer-oriented. People can save up to 50% from the transportation since Fiuge's delivery prices are lower compared to industry price and, moreover, the service is free for companies (Fiuge).

Budbee

Budbee offers innovative and sustainable solutions for its partners, customers, and the environment (Budbee). The company intends to provide a fast, cheap, and sustainable service and aligns its values with mission and vision, thereby, creating a reputation of a mission- and customer-oriented company. Budbee uses technologies as a way to communicate with customers and through the actions that address social and environmental issues the company is educating its customers and partners about sustainability and its importance. Budbee aims to provide the best last-mile delivery

service for the customers while reducing the impact the business has on the environment and keeping costs as low as possible (Budbee). Nowadays, the company has more than 200 coworkers and according to the customer ratings this service scored 4.9 out of 5 (Budbee).

BagHitch

BagHitch increases cars' capacity that are already on the road and it results in environmentally friendly delivery service (BagHitch). Easy to use app and reliable service make BagHitch service attractive for both customers and drivers, as a result, many new users are joining its community. This service not only provides an opportunity for marketplaces and online auction houses to sell their products but positively contributes to local communities(BagHitch). The company has a constant growth by 20% each month, this lets BagHitch make a decision that business develops in the right direction (BagHitch).

DHL Sweden

DHL not only sees sustainability as an opportunity to differentiate its products and services from others but as something that connects people and improves lives (DHL's Sustainability Report 2019). By focusing on the integration of sustainability into main areas of business DHL is trying to find new, more sustainable solutions for their customers that can help to reduce CO2 emissions (DHL's Sustainability Report 2019). The provision of learning paths that raise awareness of the environmental problems among employees helps DHL to educate and inspire people to engage in the sustainable development of the company (DHL's Sustainability Report 2019). As states in DHL's Sustainability Report 2019, diversity is what makes DHL strong and through this statement, DHL positions itself as a socially sustainable company that reduce inequalities inside its business (DHL's Sustainability Report 2019). DHL's mission is to deliver excellence in a sustainable way along the three bottom lines of people, planet, profit and so far, DHL sticks to the chosen destination which is being the reason why people choose DHL as the logistics provider (DHL's Sustainability Report 2019).

Instabox

The service that the company offers is fast, reliable, and eco-friendly which resonates well with customers' expectations and needs for green logistics, thereby, being customer-focused and environmentally conscious allows Instabox to achieve a growth of 300% each year (Instabox). Currently, the service has more than 2 million users all over Sweden and Instabox is aiming to expand its service outside the Nordic countries (Instabox). Honest to its customers Instabox always reports to its certified partners all the actions it does to stop climate change and the information is open to everyone on its webpage (Instabox). In 2021 the company raised 90 million dollars with the help of EQT Ventures and plans to invest that money in new sustainable solutions that will bring e-commerce last-mile logistics to the next level (Instabox).

Movebybike

Through the promotion of a healthy lifestyle and green logistics solution the company now employs 32 people in 6 cities and delivered more than 200 000 goods (Movebybike). In 2018 Movebybike annual growth was equal to 100% and the company targets to reach 200% during the following years (Movebybike). By driving electro vehicles with the company’s logo around the city riders advertise the company and sports lifestyle, moreover, on Movebybike’s website, several reasons why working with Movebybike in terms of social and environmental sustainability are listed (Movebybike).

Urb-it

Urb-it intends to provide a solution for the last-mile delivery service that is environmentally and socially sustainable, this, in its turn, helps the Urb-it community to grow in scale, and currently, the company has around 300 clients in Europe and 1500 couriers (Urb-it). By positively contributing to the city lifestyle and providing delivery that is convenient, hassle-free, and fast for the customers Urb-it positions itself as a reliable partner (Urb-it). Through the partnership with such companies as Orkestro, DHL France, Lineten and much more Uber-it is able to boost on-demand businesses in the UK, help companies to get theirs customers’ packages delivered to

the door, and provide a reliable and eco-friendly service (Urb-it). The company takes responsibility in terms of social issues and, thereby, attracts more employees and customers.

Uber-eats

Through the integration of sustainability in the core of the business, Uber-eats was able to attract new loyal customers, partners, and employees, and now it employes 10 000 couriers and operates in 6000 cities all over the world (Uber). Uber-eats takes responsibility for its actions and as the leading mobility platform commits to provide service that is environmentally friendly and socially sustainable (Uber). The introduction of many new customer-oriented filters in the app creates the best experience for the customers and, therefore, customers for life (Uber). During the pandemic Uber-eats' net sales raised up to 6.96% billion dollars and now the food delivery business is bigger than its ride-sharing (Michelle Cheng). The graph below presents the statistic of Uber-eats' growth from 2017 to the first quarter of 2020. The

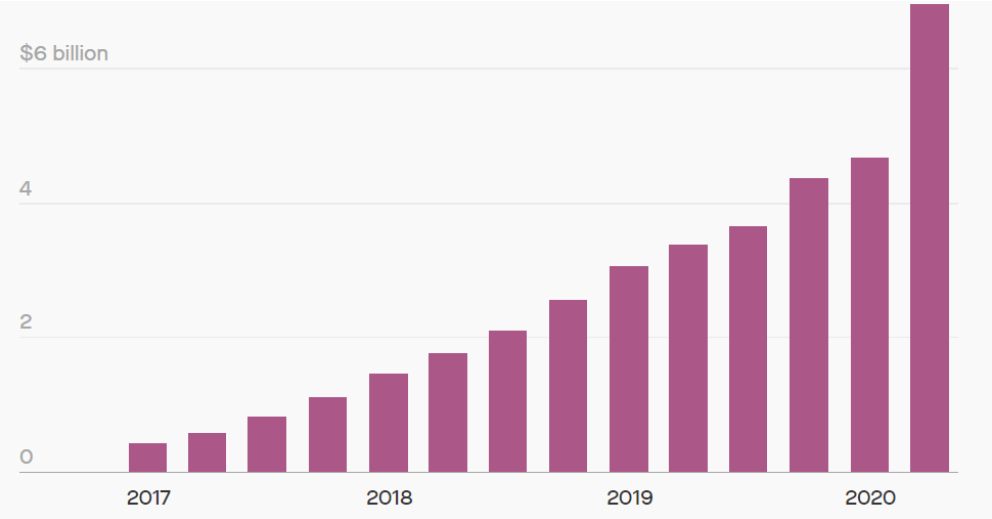


Figure 20. Uber-eats growth from 2017 to the first quarter of 2020.

pattern of continuous growth can be clearly seen, even before the pandemic Uber-eats was getting attention from the public, however, the rapid growth emerged due to people's needs for groceries and food delivery when quarantine at home (Michelle Cheng). The CEO of Uber-eats expects this service to become as big as Uber's ride-sharing (Michelle Cheng).

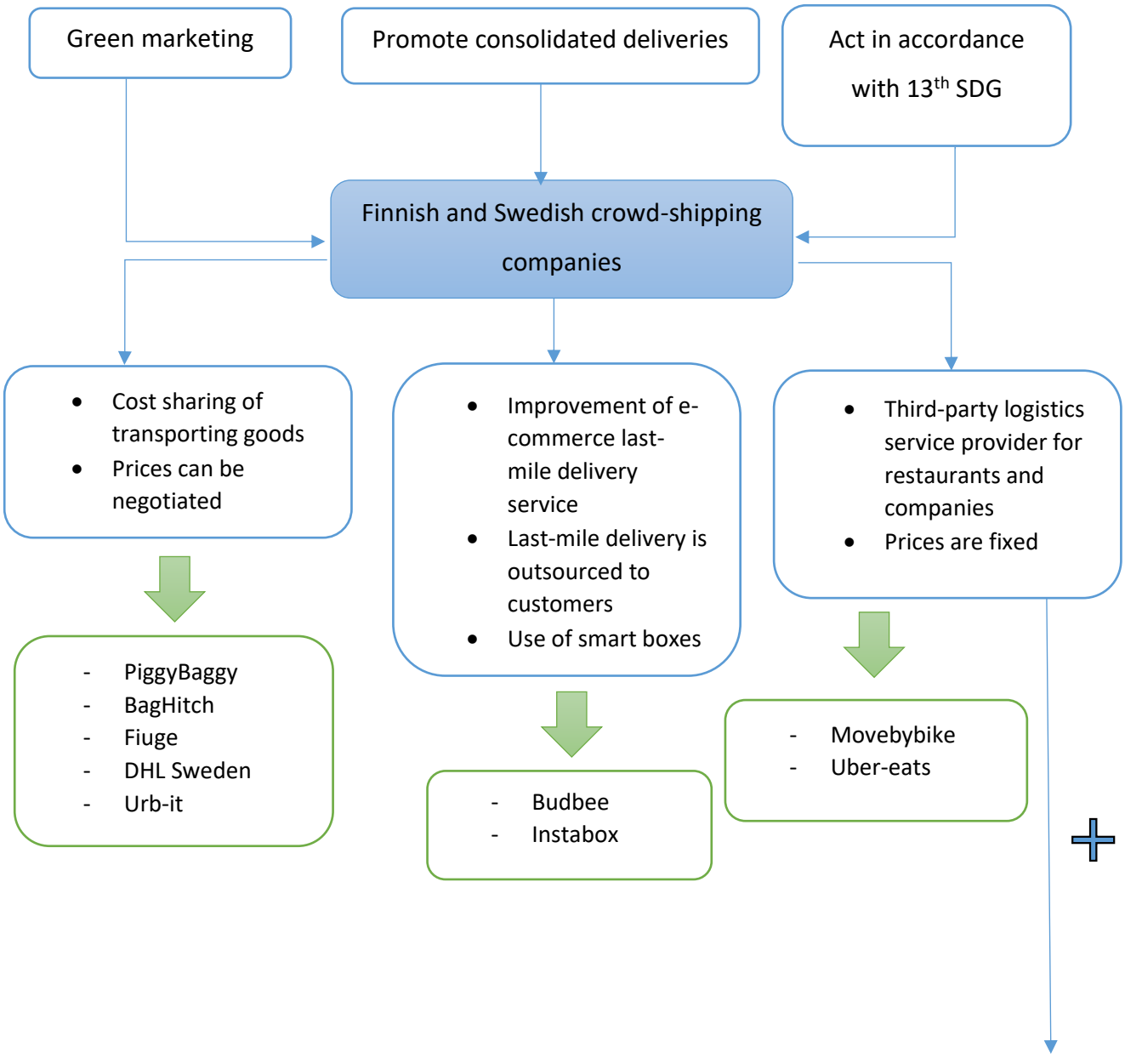
6 Conclusion and discussion

6.1 Significance of the research

During the research, eleven crowd-shipping companies that operate in Finland and Sweden were found and presented in chapter 5.1. As it was already defined in the literature review crowd-shipping is when ordinary people are directly involved in the last stage of the delivery process, thus, the companies that are presented in chapter 5.1 are either partly or fully outsource their last stage of the supply chain to ordinary people. The research showed that Swedish and Finnish crowd-shipping companies are mostly app-based platforms that deliver either door-to-door or to collection points nearest to the customer's location. Investigated companies intend to provide a service that is easy to use, cheap and eco-friendly which positively contributes to society, the planet, and the economy. Companies like PiggyBaggy, BagHitch, Fiuge, DHL Sweden, and Urb-it do not employ people, but they match those who need something to be delivered and those who are already on the road or are planning to make a trip and willing to earn some extra money and reduce their transportation costs. These platforms promote cost-sharing of transporting goods, thus, all parties involved can benefit from this service: customers can get their goods delivered for a smaller price if compare to market prices, and drivers reduce their transportation costs. In PiggyBaggy, BagHitch, Fiuge, DHL Sweden, and Urb-it platforms prices can be negotiated, therefore, customers leave delivery requests and specify what item needs to be delivered, where, and at what time. The app can give a piece of advice about what price it is better to set based on the item and drivers are willing to accept those requests that fit them.

Such companies as Budbee and Instabox focus on the last-mile delivery improvement of e-commerce service, to make the online shopping the most delightful for their customers and greener these companies deliver orders to the specially designed boxes all around the city where customers can pick it up by themselves. Instead of delivering those parcels by vehicles to every customer and polluting the environment, customers can pick-up the parcels on their way to work, or while

shopping in the city center. The parcel is delivered to the smart box which is nearest to the customer's location and the app sends a pin code which the customer should use to open it. The creation of smart boxes intends to cope with the growing demand for e-commerce, so people instead of wasting time staying in queues could come to the collection point and pick-up their parcels by themselves. Wolt, Foodora, Movebybike, and Uber-eats, in their turn, act as a third-party logistics service provider for restaurants and companies which outsourced their last-mile delivery to specialist companies. Price per delivery is fixed and in the case of Wolt and Foodora couriers are self-employed people which means that they can start to provide their service to customers or have a break whenever they want. Moreover, due to the absence of contract couriers can stop working temporarily or permanently by just not opening the app.



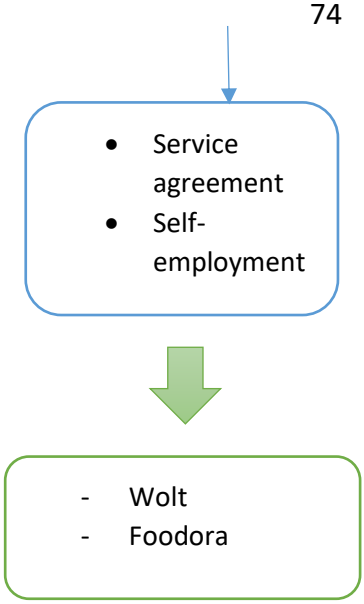


Figure 21. Finnish and Swedish crowd-shipping companies by types.

Crowd-shipping companies in Finland and Sweden support United Nations and its sustainable development goals and operate in accordance with the 13th SDG – to reduce climate change and its impact on the planet. All investigated companies promote consolidated delivery through the optimization of vehicle's capacity and driving routes, therefore, reducing the transportation costs, greenhouse gas emissions, and traffic and congections on the road. Some app-based platforms do not provide vehicles for their couriers but instead, they try to utilize already existing vehicles and public transport, for instance, Urb-it and PiggyBaggy encourage the delivery performed with the use of public transport. Furthermore, most of these platforms compensate for all of their CO2 emissions by supporting carbon offset projects that are certified and recognized. By doing this, customers can be assured that all emissions and pollutions that were emitted in the atmosphere during the delivery process are compensated and delivery is zero-emission. Wolt, Foodora, and Uber-eats by including healthy and eco-friendly options in their restaurant selection contribute to responsible food consumption and operate under the EU waste policy that aims to reduce landfilled waste by implementing a circular economy. Also, to tackle the plastic waste issue Wolt and Foodora introduced the option where instead of putting cutleries in every meal restaurants will put them only for those customers who requested it. Electric vehicles and bikes are becoming more and more popular among people and investigated crowd-shipping companies encourage the use of electric vehicles and bikes when delivering the last stage of the supply chain. Not

only do drivers get support from crowd-shipping platforms when switching to more sustainable and eco-friendly modes of transport but also their partners. For instance, Budbee and Instabox support partners on their way to become environmentally sustainable businesses, so the transportation can be 100% fossil-free. All Finnish and Swedish crowd-shipping companies focus on making the last-mile delivery service more sustainable and customer-focused by complying with environmental laws and their customers' needs.

In regard to social sustainability, Finnish and Swedish crowd-shipping companies offer a wide range of benefits both for their customers and employees. Due to the high cost for public sector youth, unemployed and elderly people can not achieve some facilities and get what they want, however, crowd-shipping provides cheap and convenient service and will transport goods with care for the environment. The tracking system, secure payment, and trustworthy users are the reasons why crowd-shipping service is so reliable and popular nowadays. During the pandemic food delivery was essential and couriers of Wolt, Foodora, and Uber-eats were on the front line, therefore, companies had to somehow secure the safety of their couriers. For instance, contactless delivery was introduced, Wolt launched the COVID-19 Partner Program to financially support those who were put into quarantine or diagnosed with COVID-19, sanitizers were provided for courier partners and restaurants, and most important, couriers could choose what is better for them either to stay home or continue to work during this hard times. Some of the investigated crowd-shipping companies can not provide social protection for their couriers because of their employment status (self-employed), otherwise, they can be fined, and due to payroll tax couriers get less salary than normally employed people would get. Self-employed people can not be provided with sick leaves, unemployment benefits, employment contracts, and insurance, however, Finnish company Wolt tries to fight such inequalities and provides accidence insurance for their couriers. Without doubts, traffic and road accidents must be reduced through the proper education of employees and the sharing of information with couriers regarding, for instance, new traffic laws. Despite the lack of social protection couriers have many benefits such as flexible schedules and accessible earnings. Couriers can choose for themselves either this will be their full-time job or a job to earn

supplementary money and couriers see such flexibility as an advantage. Furthermore, these crowd-shipping companies have a low entrance barrier meaning that jobs are accessible for all no matter what race, gender, or age employees are. Finnish and Swedish crowd-shipping companies try to diminish inequalities through policies that help to apply social sustainability into the core principles, provision of learning opportunities, and employee engagement. Additionally, crowd-shipping companies in Finland and Sweden provide many job opportunities which have a positive impact on the labour market.

All investigated crowd-shipping companies use green marketing strategies and their ads highlight products and services that are environmentally and socially sustainable. As marketing also has its own carbon footprints Finnish and Swedish crowd-shipping companies focus more on digital marketing to minimize environmental impact and it also helps to reach a greater audience. Through quality and relevant content tailored to the customer expectation, these companies were able to increase the value and authenticity of their products and services. Especially now, when people are so concerned about the environment, the demand for sustainable and cheap service that crowd-shipping companies offer to their customers is rapidly growing allowing companies to grow in scale. Finnish and Swedish companies are mission-oriented and honest with their customers that is the reason why it attracts new loyal customers and adds value to their brands.

It is important to understand the demand and supply sides when building a sustainable business model and special attention should be paid to the investigation of couriers' willingness to work because without people who are ready to provide their service the crowd-shipping model won't work. When switching to electro vehicles companies have to take into account that charging electric vehicles consumes energy and contributes to an increase in energy consumption worldwide. Finnish and Swedish crowd-shipping companies have long-run projects aimed to tackle environmental and social issues and by implementing sustainable transport solutions companies will not only reduce CO2 emissions but also contribute to noise reduction and the building of resilient infrastructures. Since the resources of our planet deplete circular economy opens new prospects and crowd-shipping promotes

the circular economy, thereby, lowering the need for extracting raw materials and leading to greenhouse gas emissions reduction.

The results of this research showed that crowd-shipping companies in Finland and Sweden try hard to tackle environmental and social issues, however, not all companies in the world do the same. Usually, companies in pursuit of money forget about social and environmental sustainability as they are trying to get profit in the short-run. Crowd-shipping is so far a relatively new solution for the transportation of goods and yet not commercialized. It was designed principally for making the life of communities and cities better and more sustainable, thus, the focus is not on making a profit but rather on providing cheap and convenient service that will not harm the environment. Because last-mile logistics is so close to the customer's side crowd-shipping can provide a deep insights on the market and, therefore, effectively meet customers' expectations, be efficient in controlling costs and communicate throughout the delivery process in order to make their customers satisfied. Sustainability, in its turn, helps to build a strong and versitile supply chain that responds quickly to the recent expansion of e-commerce market and its changing conditions, and brings major benefits for all parties involved.

The result generalizable for the Nordic crowd-shipping industry since all existing companies in Finland and Sweden were studied and the pattern of growing attention to sustainability in this industry was found. However, crowd-shipping service in other EU countries was not investigated which is why the results can not be applied for the crowd-shipping industry in general.

6.2 Reliability assessment

The selected research method measured all that it intended to measure; however, it did not provide enough depth as desired. Interviews with one of companies that were investigated during this research could have provided a deeper and wider information that can not be found on the Internet. Since the chosen research method is literature review, all data was gathered from the Internet, in particular scientific

articles, books, companies' websites, news, thus, the reliability of the majority of the data can be assured, however, some Internet sources can't guarantee 100% reliability of the materials provided (news). Due to obsolescence of information the results introduced in this research may be not valid in the future, so, the future researchers should pay attention to the date when results were found. The results can be reproduced independently by using the Internet and all the links listed below. The conclusion and generalization are meaningful for the crowd-shipping industry and highlights the bottlenecks of the system and hot spots where attention should be paid.

6.3 Further research

During the reliability assessment was mentioned that interviewing at least one of the companies investigated in this research can provide meaningful insights about how Finnish and Swedish crowd-shipping companies manage their environment, social, and economic sustainability. Since for getting more information about the topic not only scientific articles and companies' websites were used but news releases as well, the reliability of the gathered data is not 100%. For the future research use of only scientific articles and books together with conducted interview can positively contribute to the data quality improvement.

References

Adam Price. March 31, 2018. The real reason UberRUSH shut down. [https://medium.com/@adampricenyc/the-real-reason-uberrush-shut-down-fcb67f166b66]. Accessed on February 6, 2021.

Aisling Mc Ginn. PiggyBaggy to revolutionize sharing economy. [https://www.goodnewsfinland.com/feature/piggy-baggy-to-revolutionize-sharing-economy/]. Accessed on February 14, 2021.

Andrea Peer. October 16, 2020. Global poverty: Facts, FAQs, and how to help. [https://www.worldvision.org/sponsorship-news-stories/global-poverty-facts#:~:text=Recent%20estimates%20for%20global%20poverty,according%20to%20the%20World%20Bank.] Accessed on October 23, 2020.

BagHitch. [https://www.fundedbyme.com/en/campaign/7516/baghitch-first-crown-2016/]. Accessed on February 6, 2021.

BBC. Australia fires: A visual guide to the bushfire crisis. [https://www.bbc.com/news/world-australia-50951043]. Accessed on October 30, 2020.

Beattie, A. 16 June 2019. The 3 Pillars of Corporate Sustainability. [https://www.investopedia.com/articles/investing/100515/three-pillars-corporate-sustainability.asp#:~:text=Sustainability%20is%20most%20often%20defined,as%20people%2C%20planet%20and%20profits]. Accessed October 8, 2020

Budbee. The greenest, smoothest, and most precise online delivery. [https://budbee.com/how-budbee-works/]. Accessed on February 20, 2021.

Cambridge Dictionary. Sustainable. [https://dictionary.cambridge.org/ru/%D1%81%D0%BB%D0%BE%D0%B2%D0%B0%D1%80%D1%8C/%D0%B

0%D0%BD%D0%B3%D0%BB%D0%B8%D0%B9%D1%81%D0%BA%D0%B8%D0%B9/sustainable]. Accessed October 6, 2020.

Chiponda Chimbelu. July 26, 2011. Poor infrustructure is key obstacle to development in Africa. [https://www.dw.com/en/poor-infrastructure-is-key-obstacle-to-development-in-africa/a-15264436]. Accessed on October 28, 2020.

Chouinard Y.,Ellison J., Ridgeway R. October 2011. The Sustainable Economy. [https://hbr.org/2011/10/the-sustainable-economy]. Accessed October 23, 2020.

Christoph Blumtritt. August 11, 2020. Statista. Revenue forecast for the online food delivery market worldwide until 2024. [https://www.statista.com/forecasts/891078/online-food-delivery-revenue-by-segment-worldwide]. Accessed on December 19, 2020.

Conrad B. MacKerron. January 2015. Waste and Opportunity 2015: Environmental progress and challenges in food, beverage, and consumer goods packaging. [https://www.nrdc.org/sites/default/files/consumer-goods-packaging-report.pdf]. 62 pp.

DHL Sweden. DHL. Logistics for the connected age. [https://www.dhl.com/se-en/home/about-us.html]. Accessed on February 10, 2021.

DHL Sweden. Our division. [https://www.dhl.com/se-en/home/our-divisions.html]. Accessed on February 10, 2021.

DHL. [https://en.wikipedia.org/wiki/DHL#Name_origins]. Accessed on February 10, 2021.

DHL. September 3, 2013. DHL crowd sources deliveries in Stockholm with MyWays. [https://www.dhl.com/en/press/releases/releases_2013/logistics/dhl_crowd_sources_deliveries_in_stockholm_with_myways.html#.YCQC-OgzY2z]. Accessed on February 10, 2021.

Distinct Today. April 14, 2020. [https://distincttoday.net/2020/04/14/grubhub-doordash-postmates-uber-eats-sued-over-high-commission-fees-and-raised-prices/?fbclid=IwAR3daQIKGschSMSV5MmoTrPDCSbY19HkqvX9JMO4BNy2mzVPJyRfrdYRchE]. Accessed on December 19, 2020.

Durham Jeff. 24 March 2020. Equal opportunities at work. [http://www.safeworkers.co.uk/equalopportunitieswork.html#:~:text=The%20term%20%22equal%20opportunities%22%20is,employment%20terminated%20equally%20and%20fairly.]. Accessed October 22, 2020.

EarthSky. January 16, 2020. Human World. 2010 to 2019 was the hottest decade on record. [https://earthsky.org/earth/2010-to-2019-hottest-decade-on-record]. Accessed on October 30, 2020.

Emilie Boman. September 26, 2019. Making food delivery more accessible and sustainable. [https://www.uber.com/en-AU/newsroom/making-food-delivery-more-accessible-sustainable/]. Accessed on February 21, 2021.

EPA. Sources of Greenhouse Gas Emissions. [https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#:~:text=and%20Forestry%20sector.-,Emissions%20and%20Trends,by%2010.1%20percent%20since%201990.]. Accessed October 15, 2020.

European Commission. 2017. European Pillar of Social Rights. [https://ec.europa.eu/commission/sites/beta-political/files/social-summit-european-pillar-social-rights-booklet_en.pdf].24 pp.

European Commission. Education and training. [https://ec.europa.eu/education/policies/school/early-school-leaving_en]. Accessed on October 29, 2020.

European Commission. Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. [https://ec.europa.eu/sustainable-development/goal4_en#overview]. Accessed on October 29, 2020.

European Commission. Goals 3. Ensure healthy lives and promote well-being for all at all ages. [https://ec.europa.eu/sustainable-development/goal3_en#overview]. Accessed on October 29, 2020.

European Commission. Paris Agreement. [https://ec.europa.eu/clima/policies/international/negotiations/paris_en#:~:text=The%20Paris%20Agreement%20sets%20out,support%20them%20in%20their%20efforts.]. Accessed on October 30, 2020.

European Commission. Sustainability: Circular Economy. [https://ec.europa.eu/growth/industry/sustainability_en]. Accessed October 15, 2020.

European Commission. Sustainable development goals. [https://ec.europa.eu/international-partnerships/sustainable-development-goals_en]. Accessed on October 28, 2020.

European Environment Agency. [https://www.europarl.europa.eu/resources/library/images/20190507PHT44958/20190507PHT44958-pl.jpg]. Accessed October 23, 2020.

European Parlament. 10 April 2018. Circular Economy: Defenition, Importance and benefits. [https://www.europarl.europa.eu/news/en/headlines/economy/20151201STO05603/circular-economy-definition-importance-and-benefits]. Accessed October 15, 2020.

European Parlament. April 18, 2019. CO2 emissions from cars: facts and figures (infografics). [https://www.europarl.europa.eu/news/en/headlines/society/20190313STO31218/co2-emissions-from-cars-facts-and-figures-infographics]. Accessed October 23, 2020.

European Parlament. Greenhouse gas emissions by sector in the EU in 2017. UNFCCC Data Interface.

[https://www.europarl.europa.eu/resources/library/images/20191015PHT64307/20191015PHT64307-pl.jpg].

European Parliament, the Commission and the Council. February 11, 2004. Directive 2004/12/EC of the European Parliament and of the Council of 11 February 2004 amending Directive 94/62/EC on packaging and packaging waste - Statement by the Council, the Commission and the European Parliament.[https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32004L0012].

European Union. February 8, 2019. Guide to the Approximation of European Union Environmental Legislation. Part 2. Overview of EU environmental legislation. H. Noise from vehicles and machinery. [https://ec.europa.eu/environment/archives/guide/part2h.htm]. Accessed on November 18, 2020.

European Union. Health effets of noise. [https://ec.europa.eu/environment/noise/health_effects_en.htm#:~:text=According%20to%20the%20findings%20of,air%20quality%20(particulate%20matter).&text=Above%2055dB%20long%2Dterm%20average,lead%20to%20ischaemic%20heart%20disease.]. Accessed on November 18, 2020.

Eurostat. [https://ec.europa.eu/eurostat/statistics-explained/images/b/ba/2018data_Early_school_leavers-02.jpg]. Accessed on October 29, 2020.

Eurostat. July 25, 2020. Packaging waste statics. [https://ec.europa.eu/eurostat/statistics-explained/pdfscache/10547.pdf]. 15pp.

Eurostat. November 2019. Waste management indicators. [https://ec.europa.eu/eurostat/statistics-explained/index.php/Waste_management_indicators]. Accessed on October 30, 2020.

Evans, M. 8 Jule 2020. What is environmental sustainability? [https://www.thebalancesmb.com/what-is-sustainability-3157876#citation-1]. Accessed October 9, 2020.

Failte Airland. Environmental Sustainability in Business. State of New South Wales, NSW Trade & Investment. [https://failteireland.ie/FailteIreland/media/WebsiteStructure/Documents/2_Develop_Your_Business/1_StartGrow_Your_Business/Environmental-Sustainability-in-Business-BT-ESB-C9-0913-4.pdf]. Accessed October 9, 2020.

Faizan Ahmad. 2020. Analysis of platform based freelancing in long term from independent worker's perspective. [https://www.theseus.fi/bitstream/handle/10024/345663/Ahmad_Faizan.PDF?sequence=2&isAllowed=y]. Accessed on February 9, 2021.

Fiuge. [https://fiuge.com/?page_id=2556&lang=en]. Accessed on February 20, 2021.

Food and Agriculture Organization of the United Nations. Food loss and waste in fish value chains. [http://www.fao.org/flw-in-fish-value-chains/value-chain/retail/restaurants-and-catering/en/]. Accessed October 23, 2020.

Food-online: saves time or health risk? September 24, 2015. [https://korzinka.riamo.ru/article/eda-onlajn-ekonomiya-vremeni-ili-risk-dlya-zdorovya-297]. Accessed on December 19, 2020.

Foodora. [https://en.wikipedia.org/wiki/Foodora]. Accessed on February 9, 2021.

Harri Paloheimo, Michael Lettenmeier, Heikki Waris. July 18, 2015. Transport reduction by crowdsourced deliveries – a library case in Finland. [https://www.sciencedirect.com/science/article/abs/pii/S0959652615004783?via%3Dihub]. Accessed on November 18, 2020.

Heleen Buldeo Rai, Sara Verlinde, Jan merckx, Cathy Macharis. July 7, 2017. Crowd logistics: an opportunity for more sustainable urban transport.

[https://www.researchgate.net/publication/318641594_Crowd_logistics_an_opportunity_for_more_sustainable_urban_freight_transport]. Accessed on November 18, 2020.

ICarryIt. [https://icarryit.com/sender-about/]. Accessed on February 9, 2021.

ILO, OECD, IOM, UNICEF. 2019. Ending child labour, forced labour and human trafficking in global supply chains. [https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---ipec/documents/publication/wcms_716930.pdf].114 pp.

Instabox. Climate. [https://instabox.io/se-en]. Accessed on February 21, 2021.

Instabox. February 11, 2021. Instabox raises $90 million led by EQT Ventures to transform last-mile delivery. [https://www.mynewsdesk.com/instabox/pressreleases/instabox-raises-90-dollar-million-led-by-eqt-ventures-to-transform-last-mile-delivery-3072540]. Accessed on February 21, 2021.

Internatioanl Labour Organization. April 29, 2020. ILO: As job losses escalate, nearly half of global workforce at risk of losing livelihoods. [https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_743036/lang--en/index.htm]. Accessed on November 16, 2020.

International Labour Organization. 19 February 2020. The future of work and The EU's Pillar of Social Rights. [https://www.ilo.org/global/about-the-ilo/how-the-ilo-works/ilo-director-general/statements-and-speeches/WCMS_736791/lang--en/index.htm]. Accessed October 7, 2020.

International Labour Organization. 27 January 2020. Next step to end child labour in global supply chains. [http://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_735420/lang--en/index.htm]. Accessed October 7, 2020

James, C. 12 April 2020. What is Corporate Governance? [https://www.investopedia.com/terms/c/corporategovernance.asp]. Accessed November 15, 2020.

James, P.; Magee, L.; Scerri, A.; Steger, M.B. Urban Sustainability in Theory and Practice: Circles of Sustainability; Routledge: London, UK, 2015. [https://www.academia.edu/9294719/Urban_Sustainability_in_Theory_and_Practice_Circles_of_Sustainability_2015_]

Jane Courtnell. October 25, 2019. Economic sustainability for success: What it is and how to implement it. [https://www.process.st/economic-sustainability/]. Accessed on October 23, 2020.

JHL. Safe work environment. [https://www.jhl.fi/en/atwork/basics-working-life/occupational-health-safety-well/safe-working-environment/]. Accessed October 22, 2020.

Jukka Ovaska. November 24, 2020. Why the circular economy is not about recycling. [https://jpovaska.com/tag/circular-economy/]. Accessed on February 6, 2021.

Katerina Bozhinova. October 12, 2018. 16 apps helping companies and consumers prevent food waste. [https://www.greenbiz.com/article/16-apps-helping-companies-and-consumers-prevent-food-waste]. Accessed on December 19, 2020.

Li C., Mirosa M., Bremer P. July 8, 2020. Review of online food delivery platforms and their impact on sustainability. [https://www-proquest-com.ezproxy.jamk.fi:2443/docview/2422937823?accountid=11773]. Accessed on December 19, 2020.

Li C., Mirosa M., Bremer P. Review of online food delivery platforms and their impact on sustainability. 2020. [https://www-proquest-com.ezproxy.jamk.fi:2443/docview/2422937823?accountid=11773]. Accessed on December 19, 2020.

Liteng Zha, Yafeng Yin, Yuchuan Du. June 15, 2017. Surge pricing and labor supply in the ride-sourcing market. [https://www.sciencedirect.com/science/article/pii/S2352146517302703]. Accessed on November 22, 2020.

Loring Hancock. WWF. Why are glaciers and sea ice melting? [https://www.worldwildlife.org/pages/why-are-glaciers-and-sea-ice-melting]. Accessed on October 30, 2020.

Luke: Natural resources insitute Finland. Food waste and the circular economy of the food system. [https://www.luke.fi/en/natural-resources/food-and-nutrition/food-waste-and-the-circular-economy-of-the-food-system/#:~:text=In%20Finland%2C%20households%20waste%20120,kilograms%20per%20person%2C%20every%20year.&text=The%20climatic%20effects%20of%20unnecessary,1%2C000%20million%20kilograms%20CO2%20equivalent.]. Accessed October 23, 2020.

Mack N., Woodsong C., MacQueen M. K., Guest G., Namey E. 2005. Qualitative research methods: A data collector's field guide. [https://course.ccs.neu.edu/is4800sp12/resources/qualmethods.pdf]. 137 pp.

Market Insider. April 19, 2018. Foodora commits to sustainable food delivery with three-tier environmental plan. [https://markets.businessinsider.com/news/stocks/foodora-commits-to-sustainable-food-delivery-with-three-tier-environmental-plan-1021564514]. Accessed on February 12, 2021.

Markku Antikainen, Virebit Oy. Tekes Report 2016. EVE – Electric Vehicle Systems 2011-2015. [https://www.businessfinland.fi/globalassets/julkaisut/eve_final_report.pdf?_t_]. Accessed on February 5, 2021.

Michelle Cheng. August 7, 2020. Uber Eats is now bigger than Uber's ride-hailing business. [https://qz.com/1889602/uber-q2-2020-earnings-eats-is-now-bigger-than-rides/]. Accessed on February 21, 2021.

Movebybike. Join the cycle logistics revolution. [https://jobs.movebybike.com/]. Accessed on February 21, 2021.

Natural Home Brands. February 9, 2020. How to separate your recyclables and why it is important. [https://www.naturalhomebrands.com/blogs/news/how-to-separate-your-recyclables-why-it-s-important]. Accessed on October 30, 2020.

OECD Global Forum on Sustainable Development. 2-3 December 2004. Economic Aspects of Environmental Compliance Assurance. [https://www.oecd.org/env/outreach/37719119.pdf]. 176 pp.

Our Common Future: Report of the World Commission on Environment and Development. 1987. United Nations, Oxford University.[https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf]. 300 pp.

Perkiö M., Svynarenko A., Mbare B., Savi V. May 20, 2020. COVID-19 & delivery workers: health risks and essential in the same package. [https://research.tuni.fi/ghsp/blog/covid-19-delivery-workers-health-risks-and-essential-help-in-the-same-package/]. Accessed on December 19, 2020.

Riley, T. 10 July 2017. Guardian Sustainable Business. [https://www.theguardian.com/sustainable-business/2017/jul/10/100-fossil-fuel-companies-investors-responsible-71-global-emissions-cdp-study-climate-change]. Accessed October 9, 2020.

Robinson C., H. August 11, 2017. What is consolidated shipment and why is it important? [https://www.freightquote.com/blog/what-is-consolidated-shipping-and-why-is-it-important/]. Accessed October 23, 2020.
Sitra. Bringing the library home. [https://www.sitra.fi/en/projects/bringing-library-home/#contact-us]. Accessed on February 9, 2021.

Syeda Shazia Bukhari. Green marketing and its impact on consumer behavior. [https://core.ac.uk/download/pdf/234624075.pdf]. Accessed on February 16, 2021.

The Guizhou footprint report: metrics for an ecological civilization. 2016. [https://www.footprintnetwork.org/content/documents/2016_Guizhou_Report_English.pdf]. 42 pp.

The Technical Working Group on Transport (TWG). September 24, 2015. Analysis of the transport relevance of each of the 17 SDGs. [https://sustainabledevelopment.un.org/content/documents/8656Analysis%20of%20transport%20relevance%20of%20SDGs.pdf]. Accessed on November 20, 2020.

Tho V. Le, Satish V. Ukkusuri. August 1, 2017. Crowd-shipping services for last mile delivery: analysis from survey data in two countries. [https://arxiv.org/ftp/arxiv/papers/1810/1810.02856.pdf]. Accessed on November 18, 2020.

Tho V. Le, Satish V. Ukkusuri. February 18, 2019. Crowd-shipping services for last mile delivery: Analysis from American survey data. [https://www.sciencedirect.com/science/article/pii/S2590198219300089#f0030]. Accessed on November 22, 2020.

Tokyo 2020. Tokyo 2020 sustainability. [https://tokyo2020.org/en/games/sustainability/]. Accessed October 28, 2020.

Uber. Deliver with uber. [https://www.uber.com/us/en/deliver/]. Accessed on February 21, 2021.

UberBlog. February 3, 2015. Introducing UberRUSH. [https://www.uber.com/blog/new-jersey/introducing-uberrusha-reliable-ride-for-your-deliveries/]. Accessed on February 6, 2021.

UN news. October 26, 2020. Climate action: UN chief encouraged by Japan's 2050 net-zero pledge. [https://news.un.org/en/story/2020/10/1076132]. Accessed October 28, 2020.

United Nations Development Programme. Disability-inclusive development. [https://www.undp.org/content/undp/en/home/2030-agenda-for-sustainable-

development/peace/governance/disability-inclusive-development.html#:~:text=More%20than%2015%20per-cent%20of,whom%20live%20in%20developing%20countries.]. Accessed on October 30, 2020.

United Nations Industrial Development Organization. April 22, 2020. The economic impact of COVID-19 pandemic. [http://www.unido.or.jp/en/news/6801/]. Accessed on November 16, 2020.

United Nations. 1992. Rio Declaration on Environment and Development 1992. SiSU ‹http://www.jus.uio.no/sisu› (this copy). [https://www.jus.uio.no/lm/environmental.development.rio.declaration.1992/portrait.pdf]. 9 pp.

United Nations. Clean water and sanitation: why it matters. [https://www.un.org/sustainabledevelopment/wp-content/uploads/2016/08/6_Why-It-Matters-2020.pdf]. Accessed on October 30, 2020.

United Nations. Climate action: why it matters? [https://www.un.org/sustainabledevelopment/wp-content/uploads/2019/07/13_Why-It-Matters-2020.pdf]. Accessed on October 30, 2020.

United Nations. Decent work and economic growth: why it matters. [https://www.un.org/sustainabledevelopment/wp-content/uploads/2016/08/8_Why-It-Matters-2020.pdf]. Accessed on November 16, 2020.

United Nations. Ensure access to affordable, reliable, sustainable and modern energy. [https://www.un.org/sustainabledevelopment/energy/]. Accessed on November 15, 2020.

United Nations. Ensure sustainable consumption and production patterns. [https://www.un.org/sustainabledevelopment/wp-content/uploads/2020/07/E_infographics_12.pdf]. Accessed on October 30, 2020.

United Nations. Gender Equality. [https://www.un.org/en/sections/issues-depth/gender-equality/index.html]. Accessed on October 30, 2020.

United Nations. Goal 10: Reduce inequality within and among countries. [https://www.un.org/sustainabledevelopment/wp-content/uploads/2018/01/10_Why-It-Matters-2020.pdf]. Accessed on October 30, 2020.

United Nations. Goal 11: Make cities inclusive, safe, resilient and sustainable. [https://www.un.org/sustainabledevelopment/cities/]. Accessed on November 16, 2020.

United Nations. Goal 13: Take urgent action to combat climate change and its impact. [https://www.un.org/sustainabledevelopment/climate-change/]. Accessed on October 30, 2020.

United Nations. Goal 5: Achieve gender equality and empower all women and girls. [https://www.un.org/sustainabledevelopment/gender-equality/]. Accessed on October 30, 2020.

United Nations. Goal 6: Ensure access to water and sanitation for all. [https://www.un.org/sustainabledevelopment/water-and-sanitation/]. Accessed on October 30, 2020.

United Nations. Goals 3: Ensure healthy lives and promote well-being for all at all ages. [https://www.un.org/sustainabledevelopment/health/]. Accessed on October 29, 2020.

United Nations. Promote inclusive and sustainable economic growth, employment and decent work for all. [https://www.un.org/sustainabledevelopment/economic-growth/]. Accessed on November 16, 2020.

United Nations. Quality education: Why it matters? [https://www.un.org/sustainabledevelopment/wp-content/uploads/2017/02/4_Why-It-Matters-2020.pdf]. Accessed on October 29, 2020.

United Nations. Reduced inequalities: Why it matters. [https://www.un.org/sustainabledevelopment/wp-content/uploads/2018/01/10_Why-It-Matters-2020.pdf]. Accessed on October 30, 2020.

United Nations. Responsible consumption and production: Why it matters. [https://www.un.org/sustainabledevelopment/wp-content/uploads/2019/07/12_Why-It-Matters-2020.pdf]. Accessed on October 30, 2020.

United Nations. Sustainable cities: why they matter. [https://www.un.org/sustainabledevelopment/wp-content/uploads/2019/07/11_Why-It-Matters-2020.pdf]. Accessed on November 16, 2020.

United Nations: Economic and social commission for Asia and the Pacific. What is good governance? [https://www.unescap.org/sites/default/files/good-governance.pdf]. 3 pp.

University of Mary Washington. Economic Sustainability. [https://sustainability.umw.edu/areas-of-sustainability/economic-sustainability/#:~:text=Economic%20sustainability%20refers%20to%20practices,sector%20through%20the%20UMW%20foundation]. Accessed October 15, 2020.

Urb-it. City deliveries. Made better. [https://urb-it.com/]. Accessed on February 21, 2021.

Velove. January 31, 2019. Meet Movebybike Stockhlm, our first leasing customer. [https://www.velove.se/news/meet-movebybike-stockholm-our-first-leasing-customer]. Accessed on February 21, 2021.

Virta. The global electric vehicles market in 2021: statistics and forecasts. [https://www.virta.global/global-electric-vehicle-market]. Accessed on February 5, 2021.

Wolt. Every Wolt delivery is 100% carbon emission compensated. [https://wolt.com/en/responsibility/co2]. Accessed on February 12, 2021.

Wolt. July 17, 2020. Why are Wolt couriers violating traffic rules on a daily basis, and Wolt does nothing about it? – a few perspectives on the matter. [https://blog.wolt.com/fin/2020/06/17/why-are-wolt-couriers-violating-traffic-rules-on-a-daily-basis-and-wolt-does-nothing-about-it-a-few-perspectives-on-the-matter/]. Accessed on October 29, 2020.

Worl Health Organization. September 19, 2019. Maternal Mortality. [https://www.who.int/news-room/fact-sheets/detail/maternal-mortality#:~:text=Key%20facts,dropped%20by%20about%2038%25%20worldwide.]. Accessed on October 29, 2020.

World Health Organization. June 18, 2019. 1 in 3 people globally do not have access to safe drinking water – UNICEF, WHO. [https://www.who.int/news/item/18-06-2019-1-in-3-people-globally-do-not-have-access-to-safe-drinking-water-unicef-who]. Accessed n October 30, 2020.

Xiaoyun Zhang and Feng Dong. September 11, 2021. Why do consumers make green purchase decisions? Insights from a systematic review. [file:///C:/Users/813458/Downloads/ijerph-17-06607.pdf]. Accessed on February 16, 2021.

Yle. August 23, 2019. App-based courier service challenges Finland's postal system. [https://yle.fi/uutiset/osasto/news/app-based_courier_service_challenges_finlands_postal_system/10936079]. Accessed on February 9, 2021.

Zeke Hausfather. May 13, 2019. Tactcheck: How electric vehicles help to tackle climate change. [https://www.carbonbrief.org/factcheck-how-electric-vehicles-help-to-tackle-climate-change]. Accessed on November 15, 2020.

Appendices