



ByCyclingTM

A study on sustainability-related mobile app adoption

Master Thesis in Urban and Cultural Geography

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Executive summary

Nowadays, we can easily call ourselves a mobile application (i.e. app) society. There is a mobile app available for almost every possible need and, in case of any missed opportunity, one can be sure that the void will be filled shortly. At the same time, we are also trying to be a very conscious society, continually thinking and talking about social responsibility towards various stakeholders like nature, the planet, and people in general. We feel the need to be modern and economically successful, but also the pressure of not forgetting the effects this can have on everything and everyone around us. Because we understand that there is only one planet Earth, we as a society must find ways to achieve sustainable economic success. The growing need for apps that can help with sustainability goals was the reason why ByCycling was born. ByCycling is a mobile app that concentrates on solving sustainability problems in urban areas. Its aim is to promote cycling and, as a result, solve issues with urban traffic, parking, and air quality as well as improve the health of the cyclists. This should satisfy the needs of the abovementioned stakeholders. However, there is little we know about the if, why, and how companies decide to adopt such a new mobile app. What are their motives? This research study focused on companies located in Dutch urban areas and their motivations to adopt this particular sustainability-related app. The qualitative data were collected during ten in-depth interviews with employees of companies located in or near Dutch cities. Our hypothesis was "if cycling is popular in The Netherlands, then the ByCycling app has considerable potential. However, during this research, it became evident that even though this innovative sustainability-related app is easy to use, there are limitations preventing companies from adopting it. Furthermore, these limitations differed per company and depended on many distinct factors. There were positive and negative opinions, which underline where the ByCycling app excels and where it needs to be perfected. In some companies, the app's adoption is simply not possible due to the specifics of the company. Nevertheless, based on the pyramid of Corporate social responsibility and the growing need for satisfying different stakeholders at the same time, ByCycling can be an exciting opportunity.

Preface

I have always been fascinated by technology and urban life, which is why I was delighted to be able to write this thesis about the combination of two. The decision about the topic was quickly made as I knew that I really wanted to work together with an innovative technological start-up, which is in some ways related to urban city life. Writing this thesis has been a gratifying and exciting process. However, being a career-oriented individual, it has also been crucial for me to keep working full time. This means that this thesis was finished much later than planned. Nevertheless, I feel that my own work experience taught me a lot of essential things, which I was then able to use to perfect my thesis.

During the process of writing this thesis, I had an opportunity to work with and get support from several people. Firstly, I would like to thank my thesis supervisor Arnoud Legendijk. I am beyond grateful for his support and his "picking my brain" on my different approaches. He helped me when I got stuck and, after our meetings, I was always able to continue, feeling more motivated than ever. He has also been very understanding of my time issues. Secondly, I would like to give a big thank you to Jose Diaz and ByCycling for allowing me to work with his team and learn about the ByCycling app. It was exciting to work in such a start-up environment and to see how this environment works. I had such a great time that travelling from Nijmegen to Den Haag or Rotterdam did not even feel that long. Thirdly, I would like to thank my mom Riina and my father Rein, who did not stop asking about this thesis until it was ready. Last, but not least are my boyfriend Jasper and his family, who have been a fantastic support during my studies at Radboud University. I am beyond grateful for everything.

It feels weird that this journey has now come to an end. I feel like I could still make this thesis better, but one needs to decide that this is it. I sincerely hope that you have as much fun reading this thesis as I did conduct the research and hopefully you will learn something.

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1. Introduction

Cycling and the Netherlands are frequently seen as an inseparable pair of words. The cycling culture starts at a young age, with the relevant skills usually commencing at four years of age, although many children are able to cycle before. The transformation of the Netherlands from a cycling society to a car society and then back to a more combined-transport society was not always smooth. Like many countries around the world, the Netherlands embraced car usage after World War II – moving from a high of 85% cycling to a low of 25% by the mid-1970s. Since then, however, the continuous learnings were the basis of the 1980 and 1989 National Transport Strategies. The 1989 Strategy contained the goal to reduce car use growth and introduce a Bicycle Master Plan. Furthermore, it has been said, "*Plans have built upon the early plans and have continued to evolve simultaneously with the growth of cycling.*" (Wooldridge, 2014: 7).

The urban environment has evolved with the rise of technology and new sustainability-related applications (from here on, referred to as apps). People using mobile phones are now able to track their activities as well as make their everyday tasks like cycling more comfortable. For example, GPS apps may help to plan the flow of the cyclists and therefore reduce traffic in busy areas. Cities like Amsterdam are planning to research the hi-tech possibilities of helping people park the cars efficiently (Aluvihare, 2014) or of making sure that too many cyclists are not using the same routes at the same time. Several sustainability-related apps have already been developed, and they track different activities (e.g. cycling) or motivate people to move more – apps that are beneficial to both the urban environment and the users themselves. With the growing popularity of hi-tech technology use by individuals and companies, new possibilities are arising for policymakers and city planners. Companies located in urban areas are becoming increasingly interested in reducing their footprint and in helping cities be sustainable.

1.1 ByCycling

"We are on a mission to change the way people commute and exercise, all by-cycling."

J.Diaz, Founder of ByCycling

ByCycling is a start-up company that has entered the hi-tech cycling market in the Netherlands with a new concept. The dual focus of their sustainability-related mobile phone app is the health of the user and a cleaner environment. They have created an app with which people can track their cycling activity between work and home. ByCycling is not like any other tracking app, because, based on the number of cycled kilometres, the employer will offer an employee an incentive as a reward for using the bike. The benefits do not need to be monetary; they can also be extra holiday time or other agreed benefits. Ideally, this concept should create enough motivation for the employees to choose the bike over a car. This is beneficial not only for the urban environment and the employee but also for the company. By cycling more, the employees' health will be improved, and the company will need to pay less for employee sick leave. The positive consequences for cities include improved air quality because CO₂ emissions will be reduced. Also, this concept promises to help solve the parking problem because companies will need less space for parking cars. Therefore, the app developers think that their innovation will help change the futures of cities and companies by making them more sustainable and will also have positive effects on other stakeholders like nature, the planet, and people in general. ByCycling has already worked together with large companies like Facebook and VPN to test and validate their approach. The pilots have been successful.

ByCycling has a very user-friendly interface that is compatible with Android as well as iOS platforms. When the user first opens the app, they must register by entering personal details such as full name, e-mail address, and phone number. If the user has any social media accounts, the registration process is easier because they can register through Facebook or Google and use the data already available on these channels. Then, the user will be directed to a landing page, where each bike ride will be registered (Photo 1). The application shows the number of bike rides, the number of kilometres per ride, the total duration of the ride, the date, and the numbers of calories burned. This information will be shared with the employer, who will then be able to offer the agreed incentives based on the length of the rides.

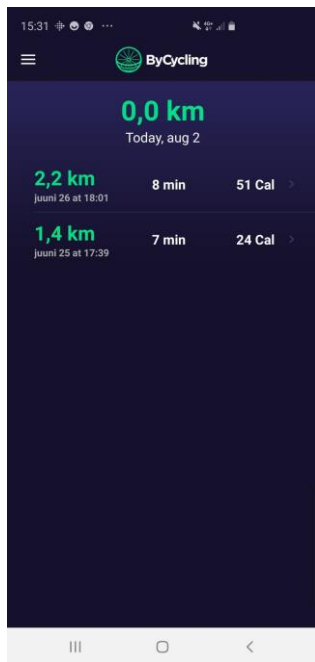


Photo 1. The landing page of ByCycling, Android version (source: own).

Furthermore, if the user clicks on any specific ride, it is possible to view a street map and the exact route of the ride (Photo 2).

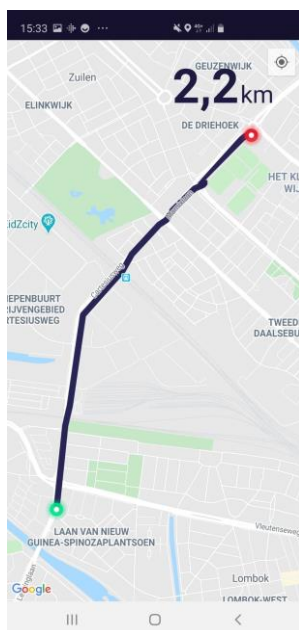


Photo 2. Details of a specific bike-ride – ByCycling, Android version (source: own).

Recording of the bike rides is a fully automated process. This means that the user does not need to start/close the app in order to start/stop recording; the app automatically starts and closes down. The only crucial factor is the GPS signal – it must be turned on so that the app can follow the

cyclist. The user cannot take other forms of transportation, e.g., a car or a bus, and have it recorded as a bike ride because the ByCycling app is based on a system that can easily detect and fully differentiate cycling from other forms of transportation.

1.2 Scientific relevance

It is suggested that the landscape of the cities will change a lot over the coming years. However, concerns with the quality of life, wellbeing, health, and urban sustainability remain. Nowadays, it is expected that businesses located in the cities will take responsibility in their actions towards stakeholders and contribute to a healthy urban ecosystem (Carroll, 1991; Carroll, 2016; Smith, 2011). This follows the framework of corporate social responsibility (CSR). The Corporate social responsibility theory has a long history. Its roots were established in the 1920s. However, it was not able to gain followers until later in the century when the effect companies have on the urban areas, society and many other stakeholders were further studied and understood (Smith, 2011). To help define corporate social responsibility and give companies more clarity, Carroll (1991 & 2016) suggests a Corporate social responsibility pyramid, which consists of four levels of responsibility: philanthropic, ethical, legal and economic.

CSR has been called the challenge of modern times and is seen as a framework that companies need to take into consideration (Dahlsrud, 2008; Jonker & Witte, 2006; Carroll, 1991; Carroll, 2016). Moreover, the CSR theory is closely related to the Stakeholder theory as both discuss the necessity to strongly consider numerous stakeholders and aspects when managing a company and to achieve sustainability as well as CSR objectives (Freeman, 2004; Pesqueux & Damak-Ayadi, 2005). Moreover, CSR has become an essential driver for companies to innovate (Jali, Abas & Ariffin, 2017).

Nowadays, technology can be a helpful tool to achieve CSR and other sustainability objectives in urban areas. Nevertheless, there is little scientific evidence about the motives why companies in urban environments would or would not adopt a particular high-tech invention like a mobile app that supports their goals. It has been shown that mobile apps can change human behaviour and should be therefore used as a tool to address specific issues (Nah, Siau & Sheng, 2005; Brauer, Ebermann, Hildebrandt, Remané, & Kolbe, 2016). Moreover, some of these apps (e.g., the ByCycling app) also support sustainability-related goals and the underlying processes on both operational and strategic levels (Brauer et al., 2016).

Many authors have already discussed the main reasons of mobile app adoption in an organization (Nah, Siau and Sheng, 2005; Brauer et al., 2016; Liang, Huang, Yeh, & Lin, 2007); however, these apps often miss the specific link to sustainability or real-world data. Brauer et al. (2016)

recommend that further research among sustainability-related apps should consist of appropriate measurements like perceived sustainable awareness, different social aspects, and qualitative research with test subjects. Although there are many available sustainability-related apps, the ByCycling app was chosen as an example in this research in order to provide a clear example.

1.3 Societal relevance

Carroll (1991 & 2016) argues the importance of expectations the society has for companies. Many organizations are struggling to find the right solutions to satisfy the needs of different stakeholders in urban areas. It is challenging to comply with all the different expectations the stakeholders may have. Furthermore, governments worldwide aim to reduce greenhouse gas emissions and propagate resource-efficient measures to achieve their objectives (Brauer et al., 2016).

Sustainability-related apps like the ByCycling app are specifically created to help to promote sustainability in urban areas. The goal of ByCycling could potentially satisfy several stakeholders as their app helps in several domains: cleaner air, less traffic, and improved employee health. Brauer et al. (2016) argue that workplace-related sustainability goals are both essential and valuable and that the company and its employees should benefit from sustainability-related apps.

It is important to understand why a company will accept these types of innovative sustainability-related apps and concepts and what the reasons are behind the potential acceptance or rejection. Innovation cannot happen without the acceptance of the potential users; therefore, it is essential to understand why and if a company would use such innovative programs and whether the management would potentially promote them. This knowledge is necessary to understand why an app may or may not work and to make further recommendations to app developers working on new sustainability-related apps.

1.4 Research objectives and questions

The objective of this research is to understand why companies located near or in urban areas would or would not adopt sustainability-related mobile applications like ByCycling. In the context of this research and because of the specifics of ByCycling, it is especially important to investigate the motives among companies located in cities, as ByCycling promises to satisfy their urban sustainability objectives. As this app is related to the many aspects of sustainability, then in order to evaluate how companies feel about ByCycling as innovation, Corporate social responsibility theory will be used.

This leads to the following main research question:

What motives do companies have to adopt or not adopt sustainability-related mobile applications based on Corporate social responsibility theory?

To answer the main research question, it is also essential to answer sub-questions related to the Corporate social responsibility theory:

- **Question 1:** Which effect do philanthropic responsibilities have on adopting sustainability-related mobile app?
- **Question 2:** Which effect do ethical responsibilities have on adopting sustainability-related mobile app?
- **Question 3:** Which effect do legal responsibilities have on adopting sustainability-related mobile app?
- **Question 4:** Which effect do economic responsibilities have on adopting sustainability-related mobile app?

1.5 Overview

This research focuses on understanding the motives of why companies may or may not adopt sustainability-related innovative mobile apps. It is essential to highlight that this research is based on one specific app because it provided an excellent example and basis for qualitative research.

First, various theoretical approaches will be described in Chapter 2. The paper will start by explaining the Stakeholder theory. It is relevant to understand how different stakeholders influence each other and how the stakeholder system exists. Then, the concept of corporate social responsibility will be examined, which will help the reader understand why sustainability and complying with it is essential for companies in general. The CSR pyramid (Carroll, 1991) will also be explained and used to analyze the decision making behind the adoption of new technologies, e.g., the ByCycling app.

Additionally, the motives behind innovation adoption will be discussed. These can be presented through multi-stakeholder co-creation as this explains the relationships between different values, stakeholders and motives. Furthermore, the contribution of innovation to the success of the companies as well as the more specific role of mobile applications to the success of their stakeholders will be explained. Moreover, the general motives of a mobile app adoption will also be discussed. In order to be able to conduct the further research, the theory presented in chapter 2 will gain more focus and will be shaped to a conceptual framework of this thesis at the end of the theoretical chapter.

The methodology of this research will be explained in chapter 3. The use of qualitative research will be discussed and explained in further detail. Also, the questionnaire and the list of interviewees will be presented. The operationalization of theory and conceptual framework will be demonstrated. Additionally, the system for coding and discovering the key emergent themes will be discussed.

The findings and results are presented in chapter 4. First, based on the methodology discussed, every interview will be discussed separately. The statements will be supported by quotes from the interviews to allow the reader to understand how the key emergent themes were found. In this manner, this research can show the exact way the interviewees were explaining their thoughts, which also helps to understand their sentiments in further detail. After that, the results will be presented. Based on the findings, I will be able to answer the sub-questions of this research.

Chapter 5 will demonstrate the motives behind (non)adoption of ByCycling. The main research question will be answered. The significance and recommendations for app developers will be further elaborated. Furthermore, the thesis will also discuss the limitations of this paper and will give recommendations for further research. The reflection of the research process will also be presented.

2. Theoretical framework

2.1 An introduction to the Stakeholder theory

The term "stakeholder" was first mentioned in an internal memorandum at the Stanford Research Institute in 1963. This word was used to describe "Any group or individual who can affect or is affected by the achievement of the organization's objectives" (Gomes, 2006: 47). Furthermore, it is essential to point out that stakeholders include all individuals or groups who can affect the welfare of a firm. Therefore, the focus should not only be on economic aspects, but also employees, customers, communities, and governmental officials, and under some circumstances also the environment and even terrorists, blackmailers, and thieves (Jensen, 2002).

The Stakeholder theory, as a theory, has been known for over thirty years. It first emerged in a book published by Richard E. Freeman in 1984 and was called "Strategic Management: A Stakeholder Approach". In Freeman's view, the main idea of the stakeholder theory is that an "Organization's effectiveness is measured by its ability to satisfy not only shareholders but also those agents who have a stake in the organization." (Gomes, 2006: 47). This notion supports the idea that a company is an essential part of society and does not just serve economic principles. Therefore, managerial actions have the potential to influence a wide range of groups and individuals within and outside the company (Wittke, 2014). The list of possible groups in a multifunctional company may be seen in the following scheme (Figure.1).

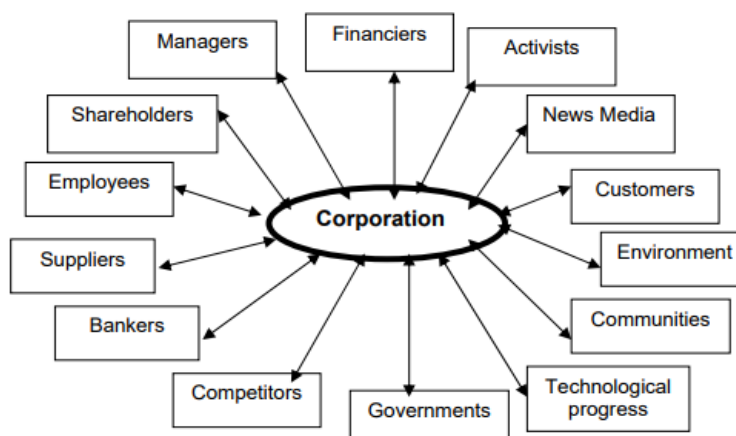


Figure 1. A diagram of possible stakeholder groups in a company (Nwanji & Howell, 2004: 5).

The Stakeholder theory can be divided into three parts. First, there is an instrumental stakeholder theory; it assumes that if managers want to maximize the objective function of their firms, then they must take stakeholder interests into account. Second, there is the descriptive part of how managers, firms, and stakeholders influence each other. Third, there is a normative part that prescribes what managers are supposed to do and which decisions are considered ethical (Nwanji & Howell, 2004).

Nowadays, the Stakeholder theory has become an essential point in many discussions in understanding what principles should be used while managing a business (Ali & Abdelfettah, 2016). Recently, the theory has also been given more voice as a point of reference by imitating CSR policies (Pesqueux & Damak-Ayadi, 2005) as it is more widely understood that several stakeholders are involved and should be considered while trying to improve environmental sustainability (Brauer et al., 2016). It is also crucial while adopting sustainability-related mobile apps because to be successful, many aspects and stakeholders must be considered (Nah et al., 2005).

The Stakeholder theory suggests that if companies only concentrate on financial aspects, then they are missing out on something more significant. Freeman (2004) argues that an enterprise cannot look at just one stakeholder group at a time and that there must be a constant drive for harmony. Interests of the company and those of the stakeholder group need to work together towards similar objectives, and only then can they create worth what contributes to the economy. That is called value co-creation. If a company tries to ignore one of the stakeholder groups, then they are expected to be in decline because there will be a lack of harmony and balance. For example, in the context of sustainability-related mobile apps, if the employees are not interested in using a specific app and do not make an effort to do so, the adoption will be impossible even if the management of the company is interested. Also, if the company ignores the need to support and promote new innovative ideas like apps among its employees, the adoption of these apps will be challenging.

Value creation in the Stakeholder theory does not, however, automatically happen when all stakeholder interests are taken into account. While it certainly has an essential role, value creation happens when the stakeholders share values that go beyond strict self-interest. Some scholars have even recommended that commitment towards similar goals is the most crucial factor. When there is an overlap in interests and passion, the symbiosis between stakeholders will create outstanding value and something that a stakeholder cannot achieve on its own. In other words, this symbiosis has the potential to create new systems, programs, and products. For example, adopting new technologies, apps (e.g., the ByCycling app), and machinery often need good cooperation and trust between all stakeholders, and therefore it is seen as an endorsement of value creation in the modern economy (Harrison & Wicks, 2013).

2.2 Normative stakeholder theory

Normative stakeholder theory is one of the three parts in stakeholder theory. It is often considered to be the philosophical approach of the Stakeholder theory because its basic ideas incorporate the teachings of Immanuel Kant. Kant gave great importance to the motives of actions. Therefore, ethics and why individual decisions are made had an essential place in his writings. He presented the goal of ethics to be the right decisions are made for the right reasons (Jones, Felps & Bigley, 2007). Furthermore, the normative stakeholder theory presents principles like human dignity, autonomy, and human rights as well as respect for environmental sustainability. It suggests that acknowledging people and communities helps one to achieve tremendous success (Ingerson, Agle, Donaldson, Godfrey & Harris, 2015).

The relationships between firms and their stakeholders can be meaningful for the companies as a reflection of their values and principles. Each company often has a clear definition of fundamental moral principles and uses these principles as a basis for its decision making (Fontaine, Haarman & Schmid, 2006). Therefore, the Normative stakeholder theory recommends that effective management of the company needs a balanced consideration of all the stakeholder's interests.

Stakeholder, as a subject in Normative stakeholder theory, may be defined as someone, who has a stake in or claim on the firm (Hasnas, 2013). The most critical group of stakeholders among the company structures itself consist of actors, who because of the power, authority, responsibilities or claims over the resources, are central to decide on any given potential project in the company (Majava, Haapasalo, Belt & Mottonen, 2013). However, in Normative stakeholder theory, all the groups of stakeholders are generally seen as equally important. For example, suppliers, customers and the local community are all vital to the survival of the company (Hasnas, 2013). This means that while adopting new innovative technologies like sustainability-related mobile apps, the company needs to carefully look at their own specific and unique stakeholder network and understand how to create harmony between most of the stakeholders.

2.3 Corporate social responsibility

2.3.1 Introduction to Corporate social responsibility

"To reach the land of profit, follow the road of purpose."

(Edmans, 2016: 1).

For the past thirty years, many companies have struggled to fulfil the expectations of society. It was long considered reasonable that companies will need only to satisfy the financial needs of the shareholders. This idea started to change around the 1970s, when new governmental laws worldwide started to emerge that made the environment, society, and consumers a legitimate part of the stakeholder network. Since then, firms have tried to find the proper balance between shareholders and stakeholders as well as between ethics and legal requirements. These issues are addressed in the framework of the CSR theory (Carroll, 1991).

The CSR theory has a long history. Its roots have been established in the 1920s, but it was not able to gain followers and understanding until the 1950s. The turning point was an article from Frank Abrams, a board member for Standard Oil of New Jersey, who wrote an article in Harvard Business Review, where he suggested that the most crucial obligation of the business is:

"To conduct the affairs of the enterprise to maintain an equitable and workable balance among the claims of the various directly interested groups, a harmonious balance among stockholders, employees, customers, and the public at large." (Smith, 2011: 1).

Carroll (2016) explains that modern CSR continued its development after Howard R. Bowen published a book called *"Social Responsibilities of the Businessman"* in 1953. Even at that time, his

work strongly advocated that big businesses in the United States were the centres of power and that their decisions affect many citizens. Bowen started to play with the idea that there is a reasonable amount of responsibility that citizens can expect and assume from a business. It has since remained a struggle for companies to find out what it means to be socially responsible (Carroll, 1991). In the early phases of CSR, corporations could ignore issues with society. Later, with the significant ethical and legal changes in the 1970s, it was impossible not to consider and work on these problems. Jonker and Witte (2006) have argued that CSR is the new organizational challenge of modern times. Dahlsrud (2008) adds that the challenge exists because of the lack of specific definition. This creates much confusion among the companies, making it very difficult for them to understand and adapt to CSR values.

There are hundreds of possible ways to define CSR. In the framework of this Master thesis, however, the definition of the European Commission will be used. It states the following:

"Corporate social responsibility (CSR) refers to companies taking responsibility for their impact on society. The European Commission believes that CSR is important for the sustainability, competitiveness, and innovation of EU enterprises and the EU economy. It brings benefits for risk management, cost savings, access to capital, customer relationships, and human resource management." (European Commission, 2017: 3). Furthermore, the European Commission (2017: 7) suggests that *"CSR should be company led, integrating social, environmental, ethical, consumer, and human rights concerns into their business strategy and operations."*

The Stakeholder theory and the CSR theory are strongly tied to each other; however, their focus is slightly different. The CSR theory has a sharper focus on the enterprises themselves and all the issues they face when they try to fulfil all the expectations of society. The stakeholder theory, however, goes a step further in analyzing all the stakeholders separately and why their individual needs must be fulfilled (Crowther, 2008; Smith, 2011).

2.3.2 The pyramid of Corporate social responsibility

In order to define CSR further and to give more depth to the idea of CSR, Carroll (1991) has identified the pyramid of Corporate social responsibility theory. This pyramid has four different types of responsibilities, which can be seen in Figure 2.

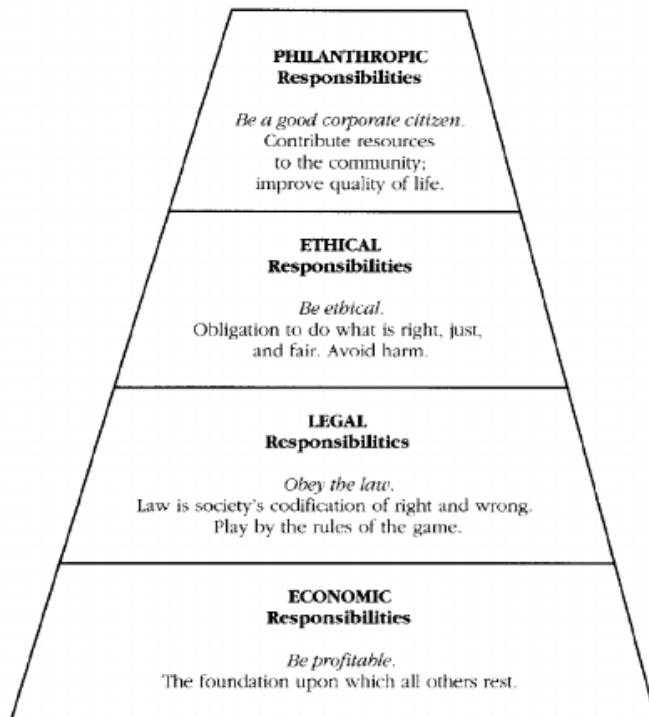


Figure 2. The pyramid of Corporate social responsibility (Carroll, 1991:42).

This model reflects all four of the critical responsibilities a business has, according to CSR. They are economic responsibilities, legal responsibilities, ethical responsibilities and philanthropic responsibilities. It is essential to understand that CSR cannot be complete without the ethical and philanthropic part, which did not have a significant place until the 1970s and now have an influential role in the functioning of every business (Carroll, 1991).

Economic responsibilities are the responsibilities towards profitability. Carroll (1991) argues that all other business values rely strongly on economic responsibilities, and without them, the other levels of the pyramid become challenging to achieve. Firms are at their core made to provide goods and services to the public and make money (Cedillo Torres, Garcia-French, Hordijk, Nguyen & Olup, 2012). Societies anticipate and expect firms to sustain themselves, and the way they can do so is to earn money by adding value. By continuing this strategy, businesses benefit all the stakeholders involved (Carroll, 2016).

Legal responsibilities are the second level of the pyramid. This level needs to make sure that the business will obey the law. Companies are always expected to work together and be compliant with the laws and regulations created by the different kinds of authorities, local or international (Teymouri, 2015). Obeying different types of laws is necessary to be a social contract of businesses and society, where companies can pursue their goals without harming others (Carroll, 1991).

Ethical responsibilities are the third layer of the pyramid. Business ethics consists of morals and values, which often cannot be reflected through legal responsibilities or law-making. It marks the responsibilities and values of an organization in further detail (Broni, 2010). Carroll (1991) adds more depth to what can be seen as one of the fundamentals to Stakeholder theory and describes ethical responsibilities as "*Embodying those standards, norms or expectations that reflect a concern for what consumers, employees, shareholders and the community regard as fair, just, or in keeping with the respect or protection of stakeholders moral rights.*" (Carroll, 1991: 41). Moreover, implementing ethical responsibilities shows that firms further respect standards, norms and activities and live by the "spirit" of the law, not just execute the law (Carroll, 2016).

At the highest level of the pyramid are philanthropic responsibilities. As the word philanthropy comes from Greek and means the love for humanity (Philos- friendship or Phileo- the one I love), then in the business world it is related to the same meaning: voluntarily giving back to the society (Mihaljevic & Tokic, 2015). This level of the pyramid remains the most ambiguous because unlike the ethical responsibilities, no action is expected in any moral sense. Additionally, this will not change the view of the company from ethical to unethical. However, there are always some expectations from society towards companies, that businesses are good corporate citizens and want to contribute extra (Carroll, 1991). Nowadays, companies use different assets to engage in philanthropic responsibilities. The contribution can be made via gifts, community development, employees taking part in voluntary activities *et cetera* (Carroll, 2016).

Gazzola (2014) indicated in her research that the companies who are busy with CSR typically have a better reputation than those who do not actively do so. Having a good reputation makes the firm successful in the long term. For example, in a nowadays competitive environment, being able to offer innovative solutions inside of an organization gains even more critical as companies compete for the most valuable employees (Bergschöld & Källgren, 2014). Furthermore, companies use CSR as a logical choice to build relationships and gain trust among their stakeholders. (Li, Li, Tsai, Lee & Lee, 2019). In order to make the CSR work in advance of the firm's reputation, companies need to build long-term commitments, which must be supported by senior management. It has been found that one of the essential aspects of corporate reputation is not only how companies implement this, but

how stakeholders perceive it. CSR and corporate reputation are positively correlated (Šontaitė-Petkevičienė, 2015).

Sustainability-related apps like ByCycling can potentially help companies achieve their CSR related objectives as they can contribute to the several aspects of the pyramid simultaneously. CSR has become an essential driver for innovation adoption, which business entities all over the world are interested in using in order to gain commercial driven benefits and at the same time contribute towards societal and environmental issues. (Jali, Abas & Ariffin, 2017). Adoption of mobile apps like ByCycling would thus be a viable option because it has been proven that they can influence behavioural patterns and therefore satisfy several different sustainability objectives (Brauer et al., 2016).

2.3.3 Corporate social responsibility and innovation adoption in companies

Innovation adoption in companies typically starts with an understanding that there is a need for something new. However, the need for something new often arises from outside of the business as companies are regularly facing the pressure to adapt to certain norms, expectations and challenges (Mulgan, 2014). However, as innovation is the key for competitive advantage, the companies try and adopt innovative solutions, and innovation is seen as essential for the growth of any company (Zakic, Jovanovic, Stamatovic, 2008).

The pressure to be sustainable, specifically CSR, confronts and pressures businesses to take individual decisions and actions to stay up to date and satisfy the stakeholders. Nevertheless, what may be acceptable and sufficient in one company (e.g. possibility for adopting ByCycling) can be seen as irrational in another business. Moreover, businesses are complex holistic entities, where diversity has a significant role in the motives for (non)adoption of innovative technologies. The nature of an innovative idea or process is the crucial factor in finding the right fit (Cooper, 2011).

As discussed earlier, businesses deal with rising pressures to change their ways. Many firms are under pressure to assess and analyze their impact on social and environmental aspects. It discussed that in the future businesses will need to adopt more sustainable technologies and ideas to prove their legitimacy. Sustainability has become a capability and power that firms need to work on and a challenge of the future (Adams, Bessant, Jeanrenaud, Overy & Denver, 2012). This idea is strongly tied to the principles of CSR, where it is expected that a business will take responsibility for its actions in environmental as well as in a social field (Debroux, 2008).

From the beginning of the 1990s, companies have started to take the CSR activities very seriously and invest much money to improve their relationship with society and the environment. That

does not only mean that the companies will want to be better corporate citizens, but it also means better business (Dai, Ng & Tang, 2013). Many firms are increasingly proactive and trying to solve problems especially in the domain of sustainability as it is the key to the new relationships, positive marketing as well as getting closer to the community itself, who is then more likely to adapt to the products or services offered by the same business (Adams, Bessant, Jeanrenaud, Overy & Denver, 2012).

In order to create a right level of engagement to the innovation and CSR objectives, Wellins, Bernthal & Phelps (2005) argue that employees need to know the goals and objectives of a business. These areas need to be made clear already at the beginning of the working relationship as in that way employee can adjust to the workplace better. If the company tries to adapt to CSR and has a plan to achieve the related objectives, then the employees need to be equally involved. The ideas and goals need to be promoted, and employees need to be educated. According to the Stakeholder theory, there needs to be communication between the stakeholders in one company. This is specifically relevant when adopting ByCycling as the through its specifics; they aim to involve several stakeholders from the same organization.

2.4 The importance of businesses as sustainability advocates in the cities

2.4.1 Defining sustainability

In 1969, humanity was able to see the planet Earth from space for the first time. This revolution helped people to understand that this small "blue tiny ball" is not dominated by human activity as one would like to think, but by clouds, big oceans and greenery. It was clear that humanity is lacking to fit into the processes of planet Earth and that causes fundamental changes to the climate. These changes are mostly negative and accompanied by life-threatening hurricanes, floods and other threats. This is a new reality, which needs to be addressed immediately (Morelli, 2011).

Sustainability is nowadays a popular term, which expresses the need to use the current space around us in a way that "*meets the needs of the present, without compromising of future generations to meet their own needs and encompasses the concurrent dimensions of the 3P approach: Society (People), Economy (Profit), and Environment (Planet).*" (Kemp, Nijhoff-Savvaki, Ruitenburt, Trienekens & Omta, 2014: 69). It is now very well understood that globalization will bring local and global changes as well the different issues to the city life and therefore sustainability is now the keyword, which targets issues like economic, social and ecological well-being (Allen, 2003).

From an economic standpoint, to be sustainable means that current economic activity respects and avoids burdening future generations. It means that the environment is not the only

commodity, which will be considered according to the needs of a company, but the company will examine the positive and negative sides of their activity towards sustainability annually and makes changes accordingly (Morelli, 2011). Sustainable development in the framework of economic sustainability means adjusting the focus from monetary values towards considering nature, human and social capital (Basiago, 1998). Based on ByCycling, there are, however, possibilities to harmonize economic goals as well as sustainability at the same time.

According to Basiago (1998), social sustainability includes the participation of society, accessibility, empowerment and institutional stability. Morelli (2011) adds that social sustainability can be described as a positive condition inside communities and the movement to achieve that condition. Social sustainability works toward perfect harmony between services and people, who all feel equal and understood simultaneously. It is also meaningful to point out that social sustainability targets and fights against poverty.

"Environmental sustainability requires maintaining natural capital as both a provider of economic inputs called 'sources' and an absorber called sinks of economic outputs called wastes." (Basiago, 1998: 155). Environmental sustainability means clean air, clean water and productive land, which is fundamental for the economy as well for the existence of humanity. Moreover, for the economy to flourish, there needs to be a flow of energy, material and other economic resources. Without those resources, the economic systems will likely shut down. Therefore, it is apparent that without a sustainable environment, it is impossible to have a sustainable society (Morelli, 2011).

It is prevalent to identify sustainable development only through environmental aspects, which is a frequent misunderstanding of sustainable development. By thinking only through environmental perspective, one leaves out the market forces and social inequalities, which both have an essential role in environmental deprivation. In order to understand the core of the problems with sustainability, social sustainability, economic sustainability as well as environmental sustainability, need to be looked at as equals, which work in symbiosis (Basiago, 1998).

2.4.2 Sustainability and businesses in the city environment

With current urbanization trends, it is expected that by 2030 all regions, including Asia and Africa, have a majority of inhabitants living in urban areas. That puts steady pressure on the city environment as the urban areas need to be sharply improved to cope with growing numbers of inhabitants. Infrastructure, waste, water and safety are only some of the areas, which need to be continuously improved (Danciu, 2013). Poredoš (2011) argues that the city can only succeed in improving these areas if all the actors included in city life all contribute to sustainability. This also

includes the businesses located in the city, who need to take responsibility and be ready to induce change.

The tools needed to achieve a sustainable urban environment differs between places, but all-inclusive interventions from policymaking until project design and implementation are vital (Newman, 2004). The power of implementation, however, is not only given to the city officials, but organizations located in the cities have significant financial and political power. It is not rare that city halls depend on local business leaders as their power to support and market the new movements is considered higher and will bring better results. Sustainability in the cities is, therefore, a complex stakeholder network, where decisions cannot be made without compromise between different actors (Portney & Berry, 2010).

Essential factors have pushed companies to engage with sustainable development in the current and future cities. Understanding future cities are the key to growing green metropolitan markets and public services. Urban areas will be the customers of the future. Involvement of companies may help to shape the market according to their needs, which creates more monetary benefits. More specifically, being active in CSR related activities helps to market, accommodate and develop new services (Moir, Moonen & Clark, 2014).

The implementation phase of similar strategies is not always easy. Even though sustainability issues in the cities are stimulated, then only a small number of governments have embedded supportive frameworks, which are necessary. Also, there is a lack of agreement between different stakeholders which creates confusion in what is pursued. Moreover, lack of framework may lead to complete disorganization of sustainability programs, where all actors try to improve a specific area but will fail in contributing to a shared long-term goal (Leeb & Rudeberg, 2014).

In order to achieve long-term objectives, proper planning needs to be made. This type of ideas should have a highly holistic approach; however, be able to organize and guide all the relevant actors at the local level. A holistic approach is necessary as the right balance between different domains will differ locally. Moreover, businesses will feel more ready to participate in city initiatives if they feel that there is a support system adapted to their specific needs. Every urban area develops its certain indicators, meanings and desirable futures. Nevertheless, it cannot be expected that every business can fit immediately into those standards. It is crucial to have ongoing communication and other forms of partnership between the city and its businesses as well as other stakeholders to create realistic outlook and sustainability goals (Langeweg, Hilderink & Maas, 2000).

Leeb and Rudeberg (2014) argue that nowadays, businesses are taking more initiative than the cities. They note that in some cities, the roles have changed, and people and companies are enormously educated, and they do want more than the government can offer. That is also related to CSR, which means that companies need and want to participate more (Carroll, 2016). Information and communication services are proven to be a way to achieve individual sustainability-related goals in the organizational context, by supporting sustainable supply chain management practices and processes, by encouraging cleaner production or by promoting the transition towards sustainable mobility alternatives (i.e., electric mobility) by creating a novel technology-driven innovation ecosystem (Brauer et al., 2016).

Sustainability in an urban environment is not new, but the understanding of cities as ecosystems is still behind the challenges. Urban ecosystem, a base for sustainable urban development, insists that all elements of urban life are considered in the mutual relation, which supports the process (Poredoš, 2011). Companies should be able to take a more prominent role in offering sustainable solutions (e.g. sustainability-related mobile apps) if cities and governments act as a moderator between these stakeholders to raise awareness and engagement. Furthermore, any urban area should use its potential to serve as a trustworthy platform, introducing services and infrastructure for the sustainable solutions companies would like to offer (Brauer et al., 2016).

2.5 Innovation adoption in the companies and the motives of adoption

2.5.1 ByCycling as a sustainability-related application in a value co-creation multi-stakeholder ecosystem

The ByCycling app is a new sustainability-related mobile app that aims to satisfy different stakeholders simultaneously. Its goal is to contribute to the health of employees and the sustainability of cities as well as companies by persuading people to use cycling as a commuting method instead of travelling by car. The main results would be that the employees are healthier, the companies minimize the costs of sick leave, and the city has cleaner air. Furthermore, the ByCycling app would collect essential data on the travel route as well as travel time, which can be used for sustainability purposes. This brand-new concept encourages companies to pay monetary benefits to employees, which could be the "pushing factor" to make changes in an individual's habits.

Satisfying different stakeholders at the same time and moving towards the same goal can be explained through the anatomy of multi-stakeholder co-creation (Figure 3).

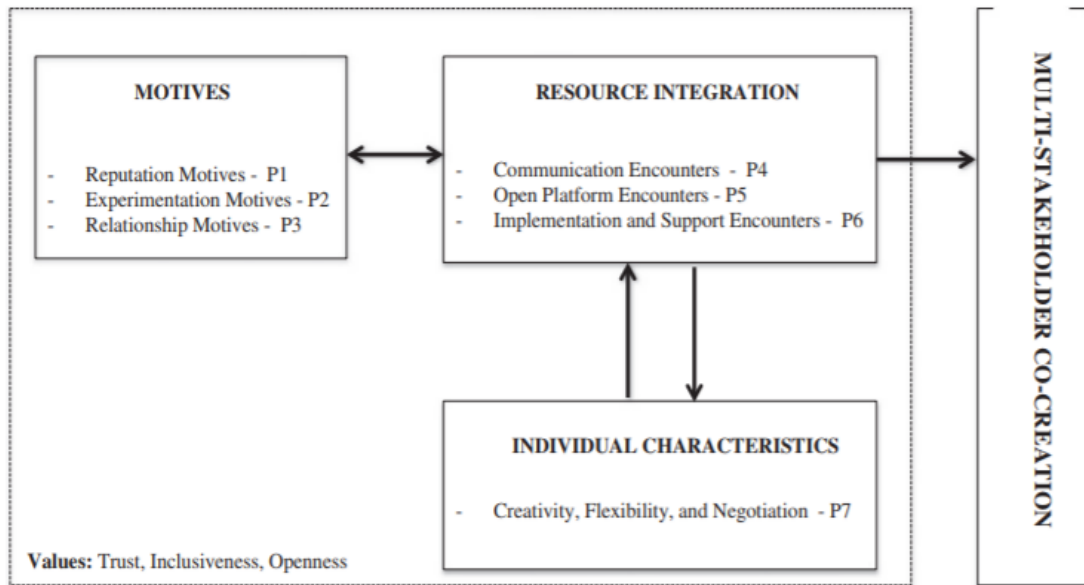


Figure 3. Multi-stakeholder co-creation process (Pera, Occhiocupo & Clarke, 2016: 8).

The two fundamental elements in this concept are stakeholder motives to engage in value co-creation and resource integration possibilities. The relationship between these two is vital in raising the contribution of each stakeholder. Individual characteristics like creativity, flexibility, and negotiation apply when discussing the design, development, and adoption of an app. Individual characteristics strongly influence resource integration and, at the same time, are themselves influenced by innovative encounter moments. Values like openness, trust, and inclusiveness might help the adoption of new innovative ideas and processes (Pera, Occhiocupo & Clarke, 2016).

In the context of sustainability-related app adoption, value co-creation has an important role. Borri and Monda (2020) argue that the integration of the resources exchanged between different actors creates new experiences and new actors. In addition, the strategic use of technology creates new ways of interacting: sharing the same goal (e.g., sustainability) creates new practices and new habits. Moreover, sustainable value co-creation is intended as a creation in the long perspective of new solutions. This is set up with and for end-users to guarantee a better service for the whole (urban) society. In this sense, the concept of sustainable value co-creation implies the desire for social well-being and therefore is a concept close to the notion of social innovation (Botti & Monda, 2020). Value co-creation translates to sustainability-related app adoption through the innovation in service, which can affect the urban society. The ByCycling app can potentially affect the general well-being of several stakeholders, which gives them a potential motive(s) to adopt this app. Adopting the ByCycling app

could also potentially help with sustainability issues in the cities (cleaner air, faster commuting, etc.), which could mean solving real societal problems.

2.5.2 The contribution of sustainability-related mobile applications to stakeholder success

Information and communication technologies (ICT) are a widely used option to try to change the behavioural pattern of an individual/employee. There are proven examples from the health and education domain as well as from the sustainability domain that show that apps are successful in creating new habits (Brauer et al., 2016). For example, based on the analyses of Siuhi & Mwakalonge (2016), it was proven that most of the popular transportation apps have significant positive benefits in an urban environment. They have been shown to help to reduce travel time, vehicle emissions, and costs.

The usage of sustainability-related apps has been growing consistently. For example, many cycling apps are used to collect, organize, and analyze cycling data in an urban environment. These data can be used for several purposes and can be valuable for several stakeholders. Together with the car and public transport data, for example, data from cycling apps are also being used to analyze local transportation (Behrendt, 2016). Griffin and Jiao (2015) studied the relationships between the health of individuals and cycling apps and found a strong relationship between them. Apps that are used for setting goals, measuring performance, and even offering incentives are often effective (Higgins, 2016). For example, the Mobike app, one of the most significant bike-sharing apps in China, offers monetary or non-monetary benefits to its users, which has helped increase the use of bikes as well as their use in a civilized manner (Jia, L., Liu, X., & Liu, Y., 2018).

In the framework of sustainability-related app adoption, the importance of using cycling apps is often discussed because the collection of cycling data can be valuable for a large group of stakeholders (a network) – from urban planners to private companies (Behrendt, 2016). For example, based on an app's data, urban planners can potentially create better infrastructure for cyclists, while private companies can cut down on health costs (Oja, Titze, Bauman, Geus, Krenn, Reger-Nash & Kohlberger, 2011). Therefore, using an app like the ByCycling app could be exciting.

2.5.3 Mobile app adoption motives of companies and employees

The mobile app industry is one of the fastest-growing markets among software production, with a continuously increasing demand (Zhong & Michahelles, 2013). For instance, one of the most popular app stores for Android devices, Google Play, has more than 2.9 million listed apps and approximately 6,140 apps are added daily. There is a consistent customer interest: in 2019, Google Play users worldwide downloaded 84.3 billion mobile apps (Sharma, 2020). There is a wide assortment of apps available that can be used for numerous purposes: e.g., information search, banking, shopping, networking, video streaming, games, and more (Malik, Suresh & Sharma, 2017). There are also many sustainability-related applications available. Brauer et al. (2016) identified 262 different applications in domains like an ecosystem, energy, food, green lifestyle, pollution, mobility, recycling, waste, water, and wildlife.

Mobile apps are divided into two categories based on their nature: hedonic and utilitarian. Utilitarian apps are task-oriented, work-related, and rational. Hedonic apps are more often related to fun, entertainment, and playfulness (Malik, Suresh & Sharma, 2017) and deal with feelings, e.g., seeking pleasure or excitement or avoiding unwanted efforts (Brauer et al., 2016). Furthermore, utilitarian relates more to aesthetic appeal and the ease of use, while hedonic perspectives relate to personal connections, potential achievements, as well as social norms (Tang, 2016). Based on this theory, the ByCycling app falls under the hedonic category as it offers playfulness and entertainment and allows people to earn (monetary) benefits.

There are several influential factors that apply to app adoption in a company. Nah and coworkers (2005) proposed the six most influential factors: efficiency, effectiveness, security, customer (employee) satisfaction, cost, and employee acceptance.

1. **Efficiency** - The adoptable application needs to be efficient for the employees. That can be achieved through efficient information communication, saving time in retrieving information and updates.

2. **Effectiveness** - Overall, the application needs to be easy to use and make the everyday life of the potential users easier.

3. **Security** – This is often one of the most critical factors for the companies in general. The data on the mobile phone can easily be compromised if the phone is lost or stolen. Furthermore, the data storage to the cloud can be an easy target for cybercriminals if poorly protected or handled. Therefore, all app providers need to offer viable security solutions in order to prevent any incidents.

4. Customer (employee) satisfaction – There needs to be real-time access to the data and information. Moreover, the application needs to work well without any issues, and the providers should be able to solve any problems quickly.

5. Cost – To adopt a potential mobile application, the company needs to buy or adopt the necessary technology. Also, the employees need to be trained to use the new application. However, it is argued that mobile applications help to reduce operational costs. Therefore, cost-benefit analysis is often needed to examine the costs.

6. Employee acceptance – Not all employees are always agreeing when adopting new technologies. The acceptance of new mobile applications is often related to individual personality traits. Some people are, by nature, more accepting than others, and some might be afraid or not willing to change. Therefore, the interface of a mobile app must be user friendly and easy to use, which will help to convince employees to switch to using new apps.

Note, however, there are several other more general factors that affect app adoption in a company, especially sustainability-related apps. Most importantly, there needs to be a good fit between the objectives of an app and the needs of the employees. The potential users, in this case, the employees, are not likely to adopt an app that will not be valuable in the context of the company and specifically for them. Furthermore, organizational viability has a vital role in the adoption of new mobile apps. The management of the company must fully support and provide a suitable IT infrastructure as well as training (Liang et al., 2007). The motivation of the employees is also a critical factor and should be encouraged, for example, by agreed benefits or gamification inside the organization (Brauer et al., 2016).

The ByCycling app is a one-of-a-kind app, i.e., nothing like it has been created before. There are, of course, always some unavoidable similarities to other apps. For example, one can compare it to "Strava", "Endomondo", "Map my ride", etc., based on their ability to track movement and use GPS. "Strava" has also proven very useful for policy-making goals (Selala & Musakwa, 2016) and "Endomondo" helps track health-based goals like weight loss (Vickey, Breslin & Williams, 2012). The ByCycling app, in contrast, is a mixture of these two and has an exciting approach as a platform made for a set of stakeholders instead of a single one. By involving several stakeholders, this app attempts to induce collaboration between different elements to achieve important sustainability goals faster and easier.

In this thesis, the research question aims to discover the motives of why companies may or may not adopt a sustainability-related mobile app, e.g., the ByCycling app. As presented in the theoretical chapters, sustainability is growing in importance and companies are expected to excel in

adapting to this growth. This is especially important to those companies located in urban areas that are growing rapidly. It is expected that many companies already have a thought-through approach towards CSR because they cannot ignore the inevitably strong relationship between company stakeholders and the CSR pyramid. Moreover, the stakeholder network can become stronger through value co-creation, in which different members work together towards the same goal. That would mean success for apps like the ByCycling app because their values can overlap with a great variety of sustainability goals for different stakeholders. Based on the above, this thesis presents the following conceptual framework (Figure 4):

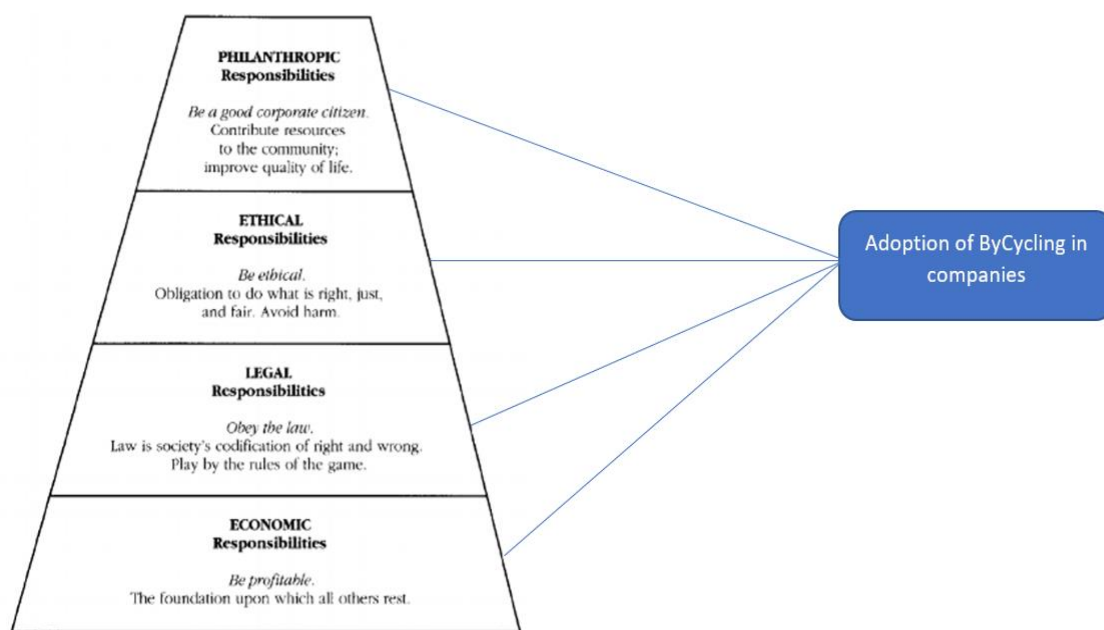


Figure 4. Conceptual framework (source: own).

Furthermore, the following four sub-questions can be formulated:

Question 1: Which effect do philanthropic responsibilities have on adopting a sustainability related mobile app?

Question 2: Which effect do ethical responsibilities have on adopting a sustainability related mobile app?

Question 3: Which effect do legal responsibilities have on adopting a sustainability related mobile app?

Question 4: Which effect do economic responsibilities have on adopting a sustainability related mobile app?

3. Method

In the framework of this thesis, it was essential to gather qualitative data. In order to do so, interviewing companies located in or near urban areas and hearing their opinions was considered the best way to proceed. The reason for this is that companies located in these areas are already familiar with many factors relevant to this research, including urban issues, implementing Corporate social responsibility theory in practice, and the possibility of adopting sustainability-related apps. The research was based on Grounded theory. By adhering to this theory, it is possible to systematically gather and analyze data and uncover social relationships and behaviours (Noble & Mitchell, 2016).

3.1 Qualitative research

In order to gather the answers, qualitative research and interviews were used. "*In qualitative research, the in-depth interviews are proven to be a successful method for data collection, because they are able to reflect different visions and after the coding, it is easy to find the upcoming similarities.*" (Strauss, 1987: 27). It is possible to understand the emotions of the interviewees and abstract details, which may not always come out during quantitative data collection (Calhoun, Rojek & Turner, 2005). Interviews were conducted in a half-structural manner. In this way, it was possible to remain open-minded when considering several different topics and the interviewer remained free to ask different extra questions that could arise during the interview process (Kvale & Brinkmann, 2009). An interview guide was developed before the interviews based on a theory and conceptual framework, and it focused on getting the answers based on research questions. It was also possible to confirm the findings with arguments directly from the interviews, allowing triangulation. The interviews were conducted face-to-face as well via telephone.

The data to be collected for this research was expected to include many hidden in-depth details. As a result, it would be challenging to use quantitative data collection because the nature of the topic and the reasoning behind answers was expected to be complicated and dependent on several (individual) factors, which are essential in understanding and presenting the results. "*The core of qualitative research aims to really find out what are the main factors and issues among certain topics instead of simply skimming on the surface.*" (Greenhalgh & Taylor, 1997: 741). With qualitative research, one can analyze human realities instead of realities of objects because each person has a proper and own understanding of the "reality" (Erlingsson, & Brysiewicz, 2013). Moreover, qualitative data will often represent multiple realities. The data analysis that was used in the framework of this thesis is called thematic analysis. Since finding the key concepts among multiple realities is not always

clear, thematic analysis helps find the highest codes and themes with high importance (Thomas & Harden, 2008).

Despite the highly subjective nature of the topic, the researcher in no way manipulated or influenced the different aspects discussed during the interviews nor did she recommend or fill in the answers, even if the answer was vague or there was no answer at all. The quotes presented in the research are not linguistically edited, to allow data to be shown in the exact detail.

3.2 Convenience sampling and pool of respondents

It is significant to mention that the aim of the research was not to focus on interviewing innovation-manager employees. Instead, the aim was to interview those employees who have specific decision-making power, but who might not necessarily be surrounded daily by the innovation activities. The reasoning was that being working in innovation might change their vision of innovation adoption (e.g., their outlook on sustainability-related mobile app adoption). Moreover, their perspective might be more curious and adaptive in general. The pool of companies was also diverse – it was decided to choose as many companies with a different background as possible and not just those companies known as leaders in innovation. This method is called convenience sampling as it is often "accidental" and refers to researching the subject accessible to the researcher (Etikan, Musa & Alkassim, 2016). Convenience sampling helped the researcher collect data from companies located in urban areas while considering the relations between companies and cities to be rather coincidental. Based on the convenience sampling, the interviewees chosen for this research can be seen in Table 1.

Table 1. Interviewee list.

Expertise area of the company	Interviewee number	Length	Location
Technology	1	45:22	Face-to-face interview
Education	2	41:52	Face-to-face interview
Legal company	3	35:46	Telephone interview
Technology	4	34:20	Telephone interview
Communications agency	5	50:11	Face-to-face interview
Travel agency	6	47:29	Face-to-face interview
Education	7	57:11	Face-to-face interview
Food supply domain	8	43:48	Face-to-face interview
Bank	9	55:20	Face-to-face interview
Logistics	10	38:11	Telephone interview

3.3 Qualitative interviews

In order to collect data for the thesis, qualitative interviews were conducted. The interviews lasted approximately 30-60 minutes. This study used a questionnaire based on the CSR pyramid because the research questions were based on CSR theory. It was expected that this questionnaire would help define and understand the reasoning behind the potential sustainability-related motives in the companies. Furthermore, it would help the researcher present the data systematically through the levels of the pyramid and gather the data in a more organized manner.

The researcher hypothesized what might be relevant to the interviewees and designed a questionnaire based on these expectations and the conceptual framework. The researcher did not, however, influence what the interviewee considered relevant. Furthermore, the interviews were entirely anonymous in order to allow the respondents to remain free in expressing their opinions while representing a company. As discussed earlier, respondents from different companies may have different realities or understandings, which all carry a different "weight" for them. There are no right or wrong realities – all answers are presented in this thesis.

In this study, it was possible to investigate the sustainability-related app adoption based on one example. The possibility to present respondents with a real-life example helped this thesis gain more focus – this could be more problematic if simple explanations of theoretical approaches or fiction are used. The concept of the ByCycling app covers several theoretical aspects of this research, but as a one-of-a-kind app also helps to contribute to finding new results. The topic list for the interviews is, therefore, a symbiosis between the CSR theory and the ByCycling app as an example of a sustainability-related app. The topic list can be seen in Table 2.

Table 2. Interview topic list.

	Topic	Subtopics	Potential interview questions
Introduction		<ul style="list-style-type: none"> • Welcoming the interviewee and introducing myself • Asking permission to record the interview • Asking if there are any other limitations to take into consideration 	
Start of the interview		<ul style="list-style-type: none"> • Introduction to the research and ByCycling app. • Further questions about the position and company of the interviewee 	<ul style="list-style-type: none"> • Can you tell me more about your company? • Can you tell me more about yourself and about your role in the company? • What type of decision-making power do you have in your company?
Body of the interview	<ul style="list-style-type: none"> • Placing yourself and your company in CSR related activities 	<ul style="list-style-type: none"> • Understanding CSR activities in this specific company 	<ul style="list-style-type: none"> • How is your company positioning itself among CSR related activities • Is your company offering any sustainable related opportunities for its employees? • Who are your stakeholders?
	<ul style="list-style-type: none"> • Philanthropic Responsibilities (CSR Pyramid) 	<ul style="list-style-type: none"> • ByCycling and understanding the philanthropic reasons for adoption or non-adoption. 	<ul style="list-style-type: none"> • Is it important for you to be sustainable? • Is it important for your company to be sustainable?

			<ul style="list-style-type: none"> ● Is your company considering the effects they have on their stakeholders? ● Which stakeholders are specifically important?
	<ul style="list-style-type: none"> ● Ethical Responsibilities (CSR Pyramid) 	<ul style="list-style-type: none"> ● ByCycling and understanding the ethical reasons for adoption or non-adoption. 	<ul style="list-style-type: none"> ● Do you think that the adoption of ByCycling will influence the ethical behaviour of your company? ● Can you bring out ethical reasoning behind adoption or non-adoption of ByCycling
	<ul style="list-style-type: none"> ● Legal Responsibilities (CSR Pyramid) 	<ul style="list-style-type: none"> ● ByCycling and understanding the legal effects of adopting this app. 	<ul style="list-style-type: none"> ● Do you see any legal limitations with adopting ByCycling in your company? ● Do you have any potential worries about ByCycling and local rules and regulations?
	<ul style="list-style-type: none"> ● Economic Responsibilities (CSR Pyramid) 	<ul style="list-style-type: none"> ● ByCycling and understanding the financial effects of adopting this app. 	<ul style="list-style-type: none"> ● Do you think that ByCycling would make a difference in saving money for the company? ● Would it be financially reasonable to work with ByCycling?
End of the interview		<ul style="list-style-type: none"> ● Any additional topics? ● Questions from interviewee 	

3.4 Desk research

Previously, it was discussed that the companies for this research would be selected by using convenience sampling. After the selection was made, it was also essential to conduct desk research to understand the specifics of every company, e.g. size, domain, and the number of employees. In the framework of this research, it was explicitly vital to understand the different innovation activities the company is engaged in. This would help the study gain more depth and support understanding of the context of the company. The desk research was conducted mostly via the internet by researching the websites of companies.

3.5 Operationalization

Before this thesis can move towards analyzing the results, it is essential to understand how the conceptual framework is operationalized. The theory of the adoption of new sustainability-related mobile apps and the role of CSR and stakeholders were presented in earlier (theoretical) chapters. It is critical to show the move from theory to a more practical process.

The concept of the CSR theory consists of four different levels (see Figure 2) and many different stakeholders (see Figure 1). In order to understand the reasons and motives for app (non)adoption, the interview questionnaire and its topics were based on the CSR theory levels, and questions were created to understand how these levels affect suitability-related app (non)adoption. The context of the company is important because management support is vital for the new app to work (Liang et al., 2007).

Operationalization is visualized in Figure 5. Based on the theory and the conceptual framework, the levels of CSR pyramid were used as a basis for the interview questionnaire (see Table 2). During the qualitative research with the respondents, specific themes will appear. These themes will be called the key emergent themes and will relate to every level of CSR pyramid.

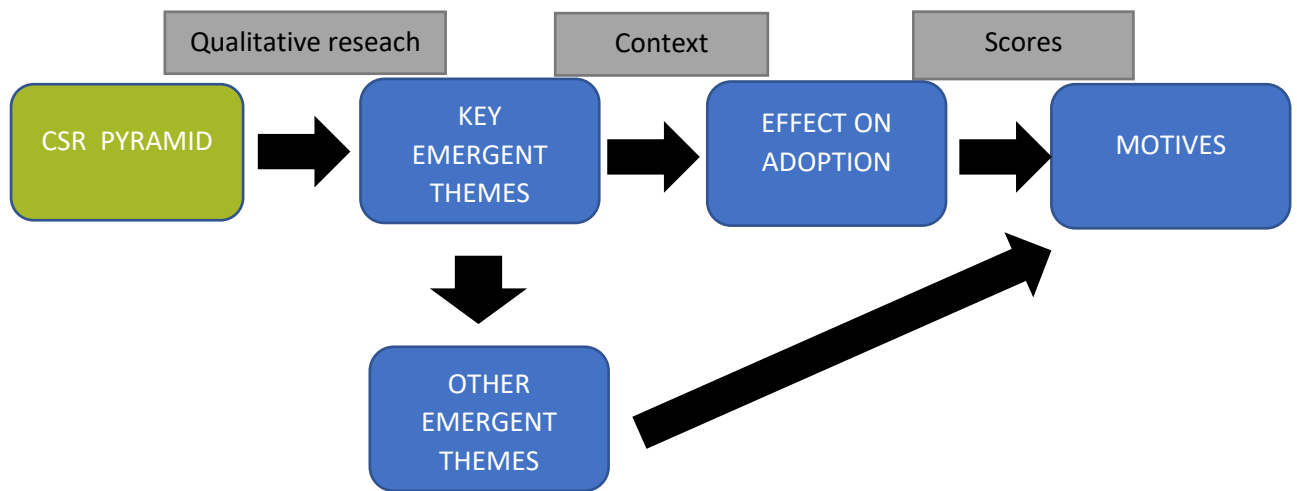


Figure 5. Operationalization of the theory (source: own)

In order to measure the CSR effect on the adoption of the app, sentiment analysis was used. This methodology helps to understand settled opinions as well as feelings of the respondents. Moreover, it also reflects the importance of an issue or question for the respondent. Classification scores were divided into the following: positive, negative and neutral, which means they are aggregated over the unit of interest (Becker, Parkin & Sasse, 2016). This thesis used sentiment analysis by annotating key emergent themes and the context of the company to the CSR pyramid levels. Every level of responsibilities has, therefore a positive, negative, or a neutral effect on the adoption in the context of a given interview. By analyzing the key emergent themes and understanding their influence, the conclusion on the motives of (non)adoption of sustainability-related apps can be made.

As this is a semi-structured interview, more independent themes will likely appear. These themes are not explicitly related to the framework of CSR theory, but they also have an important role in understanding the motives of sustainability-related app (non)adoption. These themes will be examined separately.

3.6 Data processing and analysis

As discussed earlier, the interviews were collected in a semi-structural manner allowing the respondents to elaborate their thoughts freely. All the interviews were recorded and transcribed. In order to find significant themes, coding needed to be performed. A code is a descriptive tool that is designed by the researcher to understand the primary meanings of the data, and coding is an activity to find the code (Theron, 2015). In qualitative research, coding is used to break the data into smaller sections, which helps the researcher analyze everything in more detail as well as find the hidden meanings and abstract reasons if necessary (Vaismoradi, Jones, Turunen, & Snelgrove, 2016). The transcriptions were added to the software MAXQDA, which is a valuable tool to perform the coding and find the themes. This research followed a thematic synthesis as the method of analyzing the data. Thematic analysis is the most flexible way to examine different components of data. The thematic analysis seeks to describe patterns among the data (e.g. themes, stories) and also the different “realities” among participants. Moreover, it evaluates the connections and meanings the respondents make in their experience, creating possibilities to investigate broader social context (Braun & Clarke, 2006). It helps to analyze the data in great detail with diverse respondents by using their interpretations (Alhojailan, 2012).

The criticism towards thematic synthesis is often that the authors are often not clear about the subjective assumptions that have been made. They are not explaining the fundamental aspects of decision making as well as not explicitly explaining why specific themes have been chosen and what they represent to the reader (Braun & Clarke, 2006). Therefore, this research tried to clearly illustrate the connection between the CSR pyramid and the subquestions, which helps to analyze the data. The findings in this research are always supported with strong relevant quotes. This is especially important while working with multiple realities because of the diversity of answers, ideas, and backgrounds. Furthermore, some answers may be interpreted differently, and the themes may fit into several levels of the CSR pyramid. In order to prevent this, a particular effort has to be made to clarify the necessity of choosing specific themes in a clear context.

The “theme” is the primary outcome of the thematic data analysis. The theme has several vital purposes. It has a role of concept, element as well as a descriptor (Vaismoradi et al., 2016). Thematic analysis has different subcategories or “levels” of categorizing. This creates a web-like structure (Figure 6).

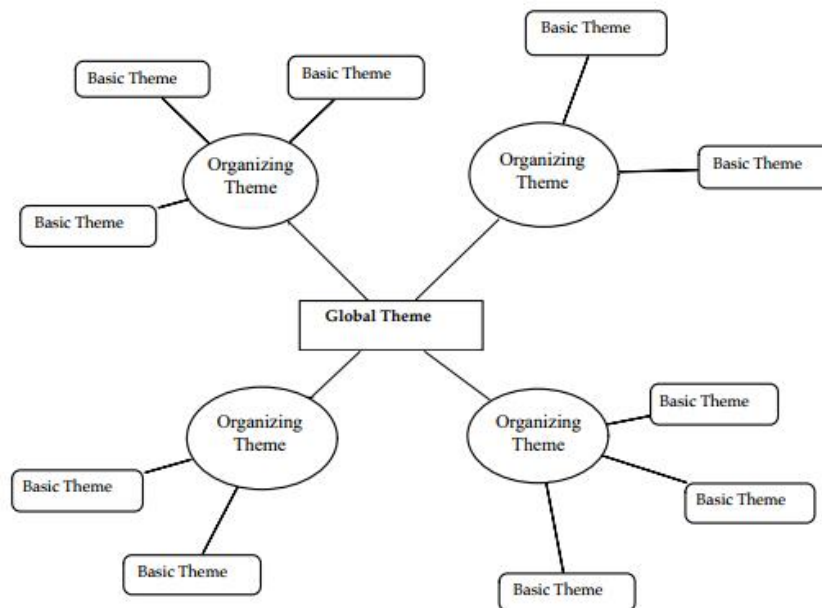


Figure 6. Structure of a thematic network (Attride-Stirling, 2001: 388).

Attride-Stirling (2006: 388-389) describes the three divided themes as following:

Basic theme: The lowest level of the network. The basic theme can be easily found in the text as a descriptor. Basic themes are somewhat “backing up” more prominent statements and systems. Alone their significance is minimal; therefore, they are part of organizing themes. Organizing themes help the reader understand the basic themes attached to it.

Organizing theme: Also called “clusters in the middle”. Organizing themes help bring out the in-depth meaning in basic themes. They are more abstract and more revealing than basic themes, and by looking at them, the reader should understand the direction of problems. They are basically clusters of the same problems or issues. Organizing themes contribute to one big global theme.

Global theme: The highest level of thematic data analysis. Global themes have to bring out the most critical and principal findings from the data. They present an essential argument or “result” from the data. The global theme has to make sense on its own but also has to use organizing themes to present an argument. Typically, in qualitative research, several thematic networks are resulting in global themes.

Coding is an intellectual activity, and therefore different researchers may find slightly different codes from the same data. The context of research, interests, and possible goals can profoundly influence the codes; however, this bias should be minimized by being as objective as possible. This shows the importance of context. The context should be made clear in every research for the readers to

understand why certain coding decisions were made (Theron, 2015). The scheme for analyzing the text from coding to summarizing may be found below (Figure 6).

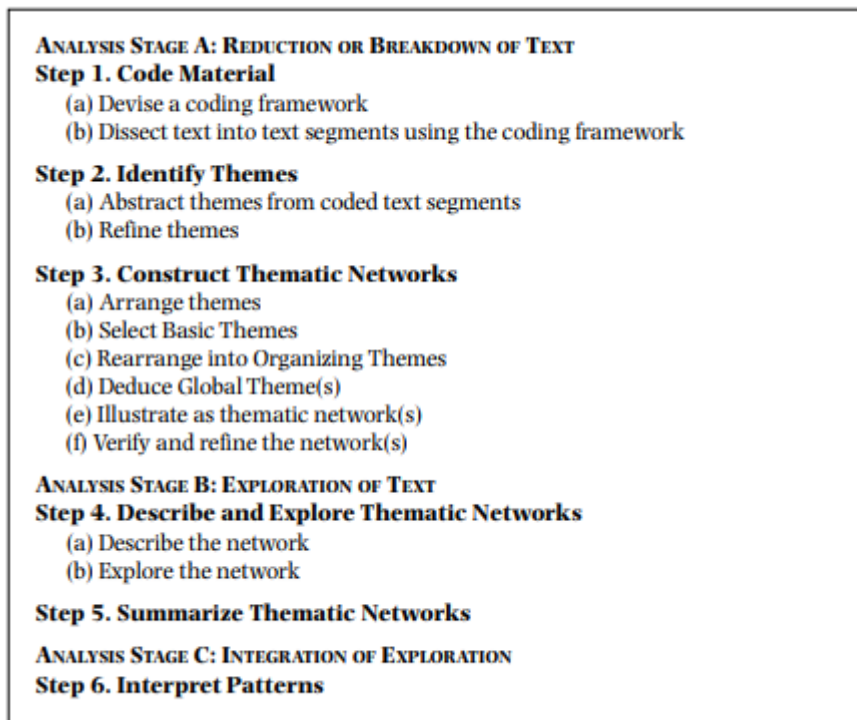


Figure 7. Steps to analyze thematic networks (Attride-Stirling, 2001: 391).

As seen in Figure 7, the first aim of coding is to find out different patterns and structures. In the framework of thematic synthesis of qualitative data, coding is generally performed based on theoretical interests. The focus should aim at answering the research questions and all other research objectives. In order to avoid coding every sentence in the data, the researcher should have an explicit focus on the topic of the research and framework. It would not make sense to code every single sentence of the interview. After coding all the necessary data, specific themes can be seen and refined for further use (Attride-Stirling, 2001).

To achieve the specific thematic network, the abstraction of themes needs to be performed. The abstraction of themes involves systematically sorting codes to create themes or to allocate codes into already identified themes (Braun & Clarke, 2006). In the framework of this research and the diversity of respondents as well as different visions, this study focused on the systematic sorting of codes in order to find the key themes as well as allocating codes into pre-existing ones as this research does not have straightforward themes and new themes are likely to emerge often. Constructing the themes starts with finding the underlying smaller themes, which then again are organized by organizational themes (networks) and should then bring out the one big global (key) theme (Attride-Stirling, 2001).

The exploration and description of thematic analysis are vital in understanding the further levels of abstraction. Important to point out is that thematic networks are only tools for analysis and not the analysis itself. Moreover, it is a tool not only for the researcher but also for the reader, who will be then able to understand the systematic reasoning and the interpretations of the researcher throughout the research (Attride-Stirling, 2001). Vaismoradi et al. (2016) argue that drawing maps and analyzing charts (describing and exploring) helps the reader understand the focus of a study and find associations of different issues, which may be more complicated without the networks.

In the results, it is now possible to present the key emergent themes and find the patterns and topics, which need to be discussed and presented. The researcher may now return to the research questions and other theoretical interests. The findings from the data should ideally support or not support the questions and hypotheses; however, they are ideally also able to bring out new findings as well (Attride-Stirling, 2001).

The findings in this research will show different understandings and perspectives of sustainability-related mobile app adoption based on the ByCycling app. To further understand the different factors deciding the success of these types of mobile apps in different companies, the chapter presenting findings is divided per company. The key emergent themes are presented through the levels of CSR pyramid for clarity. Moreover, all the themes are supported by quotes from the interviews. All the quotes have remained unchanged by the researcher to illustrate the tone and exact wording, and thus reflect the emotion and help in understanding the context of the company.

4. Findings and results

Based on the interviews conducted with a diverse pool of respondents, ByCycling is a very intriguing app. As analyzed through a CSR perspective, the interviewees indicated several aspects of importance while considering the adoption of ByCycling: privacy, cost, sustainability, et cetera. These findings show different as well as contrasting factors of adoption, which all correspond to the specific levels of CSR pyramid. While the interviewees come from different backgrounds, the app adoption challenges are often comparable, and more generalized conclusions can be made. Moreover, it is valuable to understand how the context of the company influences the (non)adoption.

Following chapter will further demonstrate the findings from the interviews with ten respondents acting as representatives for different companies in mostly unrelated domains. The context of the company will be shortly elaborated to understand the general outlook considering innovation and the adoption of ByCycling or other similar mobile apps. The data from these interviews will lead to elaborated understandings of why companies might or might not adopt mobile apps. ByCycling will be used as an example to help the respondents to understand a sustainability-related mobile application. The findings will be represented in chronological order. All interviews have been coded, and specific themes have appeared, while established pre-set categories will already come up from the interview guide and are related to CSR pyramid levels.

The categories are as follows:

- Philanthropic responsibilities
- Ethical responsibilities
- Legal responsibilities
- Economic responsibilities

As anticipated, most of the primary themes can be allocated to the categories above; however, there are also interviews with more independent themes appearing, which will then be elaborated separately. The table at the end of every interview represents the themes in the context of a given discussion and elaborates on the potential effect on adoption as analyzed through CSR pyramid levels and can be either positive, negative, or neutral.

4.1 Interview number 1 – Technological domain

Context

The first interview was conducted with a technological company. The company is international and has two locations in the Netherlands: Amsterdam and Voorburg. Approximately 700 people are working at those two locations in total. By conducting the desk research, it was discovered that this company is thriving for innovation and is marketing itself as a giant in making mobile phones and other audiovisual products. Interviewee for this interview works as a Sales Manager in their Voorburg office.

Elaboration of a mobile app adoption possibilities in the context of a given company

The respondent of this interview argued the mobile app adoption possibilities in this company almost impossible. He indicated problems with the philosophy, heavy workload, and different priorities, which makes introducing ByCycling or similar apps more complicated. They are considering themselves innovative and ethical; however, this will be realized through their products and not by adopting a particular app. He considers their product portfolio their best way to display a sustainable outlook.

"Sustainability for us is like our product portfolio and what we want to show to our customers. But if you mean like the footprint of a car or walking here in the cities or whatever, nobody gives a damn. Not important, not relevant (...) What is really important is this customer interaction and portfolio. That is the only thing we really care about. If the customer asks us, can you do green? Yes, we can (Organization 1)."

Furthermore, individual work culture-related issues also emerged. For example, many foreigners are working in this company, and they are not used to cycling. Considering that this company has two locations in the Netherlands, the respondent elaborated on the need to use a car as the primary form of commuting.

"Cause I have also foreign colleagues, who are here like for a year or two or three, they are also not really used to cycling and prefer still coming by car (...) I often have to go to Amsterdam, and I am not often here from 8 am to 6 pm, but I need to go somewhere and come back (...) I choose often the car, because of the flexibility I need to and prefer to have (Organization 1)."

Possible reasons for (non)adoption of mobile apps like ByCycling

While the app adoption environment in this given company is seen as rather unenthusiastic, the respondent was still optimistic about the app in general. Based on the levels of the CSR pyramid, he sees the following potential factors for (non)adoption in the first interview:

Philanthropic responsibilities – The respondent believes that the application can help with reducing traffic jams in the Netherlands as people will choose a bike over a car.

"And that model (app) can also take care of the traffic you know; the traffic jams are obviously an issue now (Organization 1)."

Moreover, it was said that the application is likely to be suitable for companies who are interested in preventing sustainability issues. Prevention is also an essential philanthropic factor.

"And if we are looking for the companies, who are really interested in such things we are looking at the companies, who want to prevent (...) And this (ByCycling) fits into prevention part (Organization 1)."

Ethical responsibilities – As mentioned in the company context paragraph, this company is generally interested in ethics, but this will dominantly consider their customers. Their products are designed to consume less energy and consider the ecological footprint. They are doing better than their competitors, and this has significant importance to them.

"With the products, we take care about that (sustainability). With the implementation side, you see that our products are really focused on keeping the nature clean and consume less energy and so on (...) All our equipment is considered to use less energy, also to compared to our competition (...) Sustainability for us is like our product portfolio and what we want to show to our customers (Organization 1)."

Legal responsibilities – Considering legal factors, ByCycling will not work in this company as it is not allowed by the management to work with these types of platforms. This is seen as a potential threat to the products they are producing.

"Here in my company, I believe the regulations do not allow these applications (ByCycling). Believe it or not, but being a company working in technology our bosses believe that this can be a potential threat to our own products, and we want to go and use and promote our own products. I think and agree that it can be weird if we promote like one type of products and then suddenly use like different apps and providers ourselves customers (Organization 1)."

Furthermore, the respondent is worrying about privacy and sees this as a legal issue. He refers to the fact that people do not want to be supervised, and this app can be used as a tool for that because of the data availability.

"It is also a legal issue. People do not want to be supervised, and this can be also used as a kind of tool! Not sure if this is allowed (..) if I am not here on certain time, then my supervisors might start to ask questions like why was he not here on that time or why was he late again. I mean it is not actually important in our company what time you arrive, but as you know, people still start getting ideas, and people are judgmental, so it is a concern. I would be concerned (Organization 1)."

Economic responsibilities – The interviewee pointed out that due to the culture of the company, there would be other priorities to invest money in, before investing in this app. Furthermore, in this company, people are taken care of with monetary benefits as it is the company culture.

"I can guarantee that my company would find 101 places where we should invest money before investing into this (...) And of course I mean this company tries to take care of the people, but in a different way and you know it is money (Organization 1)."

However, the idea of the app offering employees monetary benefits looks encouraging to the respondent.

"And if they (ByCycling) pay well then you know, I have heard previously that it is a strong motivator (Organization 1)."

Other - This interview also contained some autonomous themes. For example, changing the psychology of car users was mentioned. It was questioned if an app like this could change the behaviour of the employees.

"The question is now a little bit can this program make difference in a user behavior. It is a little bit psychological changes you need to address in there (Organization 1)."

Another critical aspect was also the overall infrastructure of 4G as the respondent mentioned the already present connectivity issues with other mobile apps; for example, the ones made for running. He thinks that these issues might prevent people from fully adopting and continuously using these types of mobile apps because of trust issues. Moreover, he feels that app engineers and internet infrastructure developers should work closely together.

"Yeah, you of course really need to have a good infrastructure for 4 g. I mean that is how apps can work nice, but sometimes it still sucks I feel. Like with those running apps, like it doesn't connect right with GPS or I don't know what. Then as a person, you know I would lose all trust in the app. And I know that yeah it is not the problem of the app, but people would not feel right if there is a connectivity issue. So, I feel like the app makers soon really have to work closely together with the internet infrastructure developers (Organization 1)."

Key emergent themes in the CSR context and their effect on the potential adoption		
CSR level	Key emergent themes	Effect on adoption in the context of this interview
Philanthropic responsibilities	Reducing traffic, possible prevention	Positive
Ethical responsibilities	Sustainability and ethics through other channels	Negative
Legal responsibilities	A threat to own products, privacy and judgment from management	Negative
Economic responsibilities	Investment priorities, positive outlook towards monetary benefits	Neutral

Other emergent themes

Psychology of potential users, the infrastructure of mobile network

4.2 Interview number 2 – Education domain

The second interview was conducted with an organization offering education. This well-known school is relatively big, with 1400 employees and approximately 26000 students. They have 12 colleges with 53 different locations with most of them being in the Netherlands, but some also located abroad. Desk research discovered that their studies are very innovative, and there are also several digital options to follow a study online. Their headquarter is in Utrecht. Interviewee for this interview works as a Project and team manager in the Utrecht office.

Context

The second respondent said that as their organization is enormous, every college can organize its services themselves. They are open to trying out new ideas, but this often remains at an idea level as she considers their employees too passive to take the real action. However, their company culture is supportive when it comes to anyone offering a new idea in any sphere.

"We have a central organization, but because of having 12 colleges, there is a rule that every college can organize their services themselves (...) We want to try things, but yeah often it stays at this phase (...) we are just lazy to use it (support from the company) (Organization 2)."

Nevertheless, it is fundamental to acknowledge that the respondent also feels that there are many ways to be sustainable, and adopting a mobile app is not the only opportunity.

"There are many ways to be sustainable, and it does not always mean you need to adopt new things. (Organization 2)."

Possible reasons for (non)adoption of mobile apps like ByCycling

As the general innovation adoption culture in this company is somewhat optimistic, the respondent mentions several possible reasons for mobile app adoption but also addresses certain limitations. Based on the levels of the CSR pyramid, she sees the following potential factors for (non)adoption:

Philanthropic responsibilities- The respondent believes that the ByCycling app is good for the environment because cars are pollution.

"Yes, it (ByCycling) is good for the environment and cars are pollution (Organization 2)."

Ethical responsibilities- The respondent brought out a potential issue with the adoption of this mobile app as employees might use this to start demanding more benefits.

"This changes a lot of financially and also what we should be able to offer. We then need to offer more. I mean, alright we will offer the service, but then the employees would also ask like, but you have this programme in place, so I should be also be able to get some money for myself to buy a bike, because you offer this service, so it would be unfair if I do not get a bike now (Organization 2)."

She also argued the problem with more centralized programs as the potential users (employees) might feel obliged to use it, especially if the initiative comes from the management side.

"When it was central, people felt that it (health program) was obligation. That was a health program that we need to sport more (...) And the big boss he was the promoter of all of this, and many people thought that it was an obligation because he thought that we should do it (...) now it is that we have turned it differently that the initiative comes from people, so it feels a little better, but in our company, people are allergic to the things which are central organized (Organization 2)."

Legal responsibilities- In the context of this interview, legal responsibilities were strongly tied to ethical duties as the respondent elaborated ethical and legal issues to be somewhat overlapping, related to control. However, the interviewee brought our privacy as an apparent potential legal problem the employees might have with this mobile app in the context of their organization.

"Privacy. And that is very important. We want to do things how we want to and when we want to. People might feel bad and kind of spied after, and that might cause us several issues. I am not even sure what are the rules about it, but it might be difficult to use the app for these legal reasons (Organization 2)."

Economic responsibilities- Considering Economic responsibilities, this organization does have budget and programs for innovative activities. However, specific to this company, a certain budget needs to be created.

"Yes, we do (have a budget), but often it is not a budget, but like a program (...) Yes, for this idea definitely (a separate budget needs to be created) (Organization 2)."

She also agrees that monetary benefits are an excellent option to promote using the app.

"I think that's (paying monetary benefits) motivating (Organization 2)."

Key emergent themes in the CSR context and their effect on the potential adoption

CSR level	Key emergent themes	Effect on adoption in the context of this interview
Philanthropic responsibilities	Environmental benefits	Positive
Ethical responsibilities	Employees and potential extra requests, an obligation to use	Negative
Legal responsibilities	Privacy concern	Negative
Economic responsibilities	Budget priorities, positive outlook towards monetary benefits	Positive

4.3 Interview number 3 – Legal domain

The third interview in the context of this research was conducted with a company representing the legal domain. They are mostly providing consultation services on tax forms and everything related to the tax law in the Netherlands. They are a relatively small company with 15 employees, and their office is located in The Hague. The respondent for this interview works as an Administrative manager.

Context

The respondent said that they as a company are so small and not invested in sustainability-related activities. Moreover, she feels that because of their size, the mobile app adoption possibilities are also limited as it would be more challenging to win the trust of people.

"We are so small, of course, we do what needs to be done (considering sustainability-related activities) (...). I think it is really difficult to move towards new things. People are not used to it, and you need to win their trust. It takes time even in this very small company of ours (Organization 3)."

Furthermore, it was also argued that as they are too small, then, in this case, the city should help them with parking places for bikes as people are usually coming by car. She feels that in her company, they are already used to a particular way of commuting.

"I mean we need also like extra places to park the bikes etc. Normally people use cars here, so yeah. Our logistical arrangement is probably not compatible. We are already used to it, so that is why it is difficult (Organization 3)."

Possible reasons for (non)adoption of mobile apps like ByCycling

Based on the context of the company, this respondent has a rather non-adoption supporting bias considering their size. She is worried that it would be only too difficult for them without any help from the city. Based on the levels of the CSR pyramid, she further elaborates the following potential factors for (non)adoption of ByCycling:

Philanthropic responsibilities- The interviewee does not feel that ByCycling can help with sustainability. She feels that considering the traffic jams, for example, the problem would be just placed elsewhere as she already feels that streets are filled with cyclists, and she is already avoiding commuting during those times.

"No, I think with the traffic it (ByCycling) is not that wonderful as for me it just feels that we are placing the problem from one place to another (...) It is sometimes really busy and messy on the streets because of cyclists, and I am already avoiding this. And no, I am not going by car, but actually using public transport to get to work and this also sometimes feels better to me. I personally am unable to avoid the rush hours, so cycling in a big city during a rush hour is not fun. Maybe it is good for the companies who can offer more flexibility in working times (Organization 3)."

She does agree that this mobile app helps to reduce pollution in the air; however, she thinks that so does the use of public transport.

"Of course, it works if you not go with the car, so yes (pollution will be reduced), But public transport helps as well, so now I do not feel so bad that I do not use bike (Organization 3)."

Ethical responsibilities- Ethically speaking, the respondent was concerned if the benefits offered by this mobile app are ethical. She feels that ByCycling does not take into consideration the individual physical problems the potential users might have.

"I am also not sure if money is the way to go when we speak about the difficulties. I mean we are physically so different and then we monetize if someone is physically in a better shape than another one. I understand that the application aims for people to get fit and healthy, but also forgets that sometimes it is not possible to get fitter or healthier any more. I don't know, sorry if it sounds a little bit strange, but I am always a little bit cautious about giving extra prizes for anyone over another colleague (Organization 3)."

Moreover, she also mentions age as an essential ethical factor, which is essential to her when discussing her potential adoption of this mobile app.

"One of the potential problem I see is that I am an older person, and then I think about other older colleagues, and I am not so sure if they would like to use this app. Maybe it is a bit insulting to them, or I don't know what you think about this (Organization 3)."

Legal responsibilities- As this interviewee works in the legal domain, she expressed concern about the legal part of the app. They do not want to involve themselves in unnecessary risks and also want to make sure that everything has been thought through as much as possible.

"Yeah, so we are a legal company, and I really need to tell you that often companies want to be very careful when they are introduced to something new. New suppliers need to go to these companies and make sure all is thought through, and there are like no loose ends. This is something new, and new is always scary. I think because nobody wants to take stupid risks and fail (Organization 3)."

She also specified the potential issues with the privacy and clarified the importance of making sure that the issues regarding that are solved.

"Well, I mean you probably are aware of privacy issues and how important it is to get that sorted out before any application can be introduced fully (Organization 3)."

Economic responsibilities – Considering the specific economic benefit ByCycling aims to offer, the interviewee is worried about the cost of sick leaves and understands that it is causing economic damage to any company. She agrees that ByCycling can potentially help with reducing the cost of sick leaves.

"Every company knows that having people on sick leave is a disaster. Not only have you no people to do the work, but it also causes delays, so it will cost money for us, which is, of course, something we need to minimize. I would definitely see ByCycling working in reducing this issue (Organization 3)."

However, in contrast with the statement above, she also argues that it would be difficult to estimate the economic effects of this mobile app and to understand how much money would be saved. Moreover, she is also doubtful if the company could allocate finances for this initiative as to her, this would be difficult to budget and might get too costly for them.

"It will be difficult for us to estimate how much money we would potentially save if we would adopt this service. I mean yes, promises are nice things, but maybe it will not as cost-efficient as promised, and that would be bad (...) I am not sure how we can budget this very well. Let's say we agree on an amount we plan to pay for the people for every kilometre, right? We do have a certain budget for this and then suddenly it will become big hit among our employees and many people take part of it, and the budget may need to be raised tremendously, and from a finance perspective, we might be having some issues as we do not really know how many kilometres people will cycle and how much money we need to pay out (Organization 3)."

Key emergent themes in the CSR context and their effect on the potential adoption		
CSR level	Key emergent themes	Effect on adoption in the context of this interview
Philanthropic responsibilities	Placing problem elsewhere, pollution can be reduced through other ways	Negative
Ethical responsibilities	Possible exclusion of people with physical limitations, age as a factor of discrimination	Negative
Legal responsibilities	New is scary and risky, privacy	Negative
Economic responsibilities	Reduction of the cost of sick leaves, economic effectiveness, budget priorities	Negative

4.4 Interview number 4 – Technological domain

Interview number 4 was conducted with a technological company, which is widely known all over the world. They started as a manufacturer of electrical products, but have now grown massively, and also producing different technological equipment. The desk research showed that they consider themselves a leader in innovation, and they strive to make the world healthier and more sustainable through innovation. They also want to be the best place to work for people who share their passion. They have approximately 81.000 employees and offer their services in more than 100 countries. The respondent for this interview works as an HR team manager in Eindhoven.

Context

Due to the size of this company, the respondent was representing their company in the framework of the Netherlands. She indicated that they are quite open to new ideas, however considering ByCycling she thought that their location near Eindhoven might be a problem as they are away from more major cycling routes. Furthermore, many of their employees are travelling from other parts of the Netherlands. Therefore, she considers using this mobile application and cycling as a way of commuting complicated

"I think if we take our location here in Eindhoven, we have like minimal amount of people who will want that (using bike instead of a car). We are a bit of you know outside of main cycling areas so, yes (...) many people are not really from around here, but other cities so yes and also the company is really clustered so if you need to travel to other parts, then it is difficult to do that with a bike, and people do not want it (Organization 4)."

Nevertheless, they do consider themselves open to innovation adoption in general. Unfortunately, ByCycling is not a good fit due to their work culture.

"If people recommend the idea that is possible. We are open for ideas, so idea can come from anyone (...) If I am completely honest with you, then I have to say that what I have seen from my department then ByCycling would not work here (...) Not so many people use cycling as a form of transportation and yeah and just the habits of people are different. Like everyday habits, I mean (Organization 4)."

Possible reasons for (non)adoption of mobile apps like ByCycling

Based on the context of the company, this respondent has a somewhat supportive attitude towards adopting ByCycling; however, she is worried that it would be too difficult for them due to the habits of their employees. Based on the levels of the CSR pyramid, she further elaborates the following potential factors for (non)adoption of ByCycling:

Philanthropic responsibilities- The respondent is worried about the sustainability of nature and our planet and feels the responsibility of helping.

"I am really worried about what happens to our planet. You hear from the news every day that there are floods, extreme weather conditions etc. If I could adapt something to my everyday life what could even slightly help to prevent that, I would do that immediately. I have two small kids, so I am wondering how our planet will look like in about 20 years. Honestly, I am very concerned, and I do feel the responsibility to do something so that my children would be safe (Organization 4)."

However, she also argues that sustainability and being sustainable is nowadays somewhat pressuring. Urban areas make up new policies, where companies cannot always adapt and need longer timelines.

"I really feel that nowadays it is like also a trend thing to be sustainable. Like, everybody expects you to be sustainable and come up with different solutions to the nature. It is not a bad thing of course, but it is also kind of pressuring because also cities make new policies, where they want you to do certain things, I mean you cannot always adapt as it takes time (Organization 4)."

Ethical responsibilities – The interviewee brought out issues with being controlled through this central mobile app. She argued that Dutch people want to do what they like and how they like.

"Yes, and very Dutch, because we do not like to be controlled in anything. We want to do what we do, and that is it (...) Also, as I mentioned already before, Dutch people do not want to be made to take part of something you know. I mean I wanna do, what I do and if someone tells me that ooh M come here and this is so cool, and we should make everyone do it, then I am already sceptical (Organization 4)."

She also argues that this app is also not taking into consideration all groups of employees with different needs, because for example she is a female and a mother and needs to use a car to pick up her children from kindergarten. She indicates that women have a different lifestyle than men.

"I can give you a really good example as a female right. I have for example 3 kids, and as free as Dutch women are, we still are normally the ones, who need to pick up kids and do the food shopping etc. (...) Honestly, I really feel that this is something people often forget with these ideas. If I have to drop off my three kids to kindergarten and school, then I am not doing this with bike. Of course, I can, but I will not because it is costing time and energy with three kids (...) I think these ideas and this idea is also fun to have, but as a woman, I can say it does not really take into account that women may have a completely different lifestyle than men. Really not feeling this (Organization 4)."

Legal responsibilities- As mentioned above, policies on sustainability in the context of this interview also overlap with legal responsibilities. The company feels pressured to comply with the new policies, but it is not always possible, and it will take time.

"But it is also kind of pressuring because also cities make new policies, where they want you to do certain things, I mean you cannot always adapt as it takes time (Organization 4)."

Economic responsibilities – There are enough financial capabilities in this company, and they do invest in their employees to have a stable and sustainable workplace. The health and well-being of their employees are vital to them. They want to give people different options.

"Yes. We have the money (...) We actually have quite substantial amount we can invest in people. Because as you said people are important, and health of people and all, it is important for us. I mean, why will people leave the company? It is not the salary they get; it is that they lose their motivation or feel that the company is not really taking care of them and all. It is never money, but instead of salary, we want to give people options. Options make people happy (Organization 4)."

However, the respondent also highlights that new things should be easy to adopt. Otherwise, companies would not be willing to pay.

"It has to be a really easy, what is the word I am looking for like it has to be VERY easy to adopt. Otherwise, companies are not willing to pay (Organization 4)."

Furthermore, the interviewee mentions the necessity of seeing clear benefits. It needs to be economically valuable for the company.

"As every company, we want to see clear benefits. I mean it has to be extremely well-proven how beneficial it is (...) And I have to be honest with you like often I have seen in my career things and ideas, which are innovative and cool, but they are not financed, because it has not made extremely clear how much money can company save (Organization 4)."

Other – In this interview, it was also highlighted that it is difficult to change the habits of the people. Sometimes these are very deeply rooted in the work culture.

"Actually, I think that it is quite easy to adopt, but the problems are elsewhere. Like how to change the habits and keep the users. I think the concept is very cool, to be honest, but as I mentioned, I am a bit sceptical in my thinking. I have been just working with people for a long time, and then I just know that breaking the habits of people is often difficult (Organization 4)."

Key emergent themes in the CSR context and their effect on the potential adoption		
CSR level	Key emergent themes	Effect on adoption in the context of this interview
Philanthropic responsibilities	Responsibility, the pressure to be sustainable	Neutral
Ethical responsibilities	Control, scepticism	Negative
Legal responsibilities	Policies, pressure	Negative
Economic responsibilities	Ease of adoption, investing in employees and sustainable workplace	Positive

Other emergent themes

Changing the habits of the people in the workplace

4.5 Interview number 5– Communications domain

The fifth interview was conducted with a company representing the medical communication domain. They are a relatively small company with international locations in the Netherlands, United Kingdom, United States, and Japan. Further desk research showed that they are driving to be innovative in everything they do either internally or working with their clients. They have approximately 200 employees in total, and their headquarter is in Amsterdam, where this interview took place with one of the Project Managers.

Context

The respondent feels that in her company sustainability is not often discussed or understood. She feels that the management team is generally against adopting new things. She believes that the reason might be the potential risk and occupation with other activities.

"It would be never allowed here, I think as our management team is generally against adopting new things, and the rules make it difficult to adopt this in my company. I am not sure what is the reason behind this, but I mean it is just that they are not liking these things. I guess maybe it is simply too big of a risk and too hard work with these new things. Also, we are very busy with other activities, so there you go (Organization 5)."

She also feels that her company has slightly different priorities, which are client-related.

"I mean, our priority is pleasing the client. As long as client is happy, that is what matters. Everything else comes second. People are not that, well, I do not want to say important, because we do care about the employees as well (Organization 5)."

Possible reasons for (non)adoption of mobile apps like ByCycling

While the adoption of new mobile apps might be compromised in the context of this company, the respondent feels that there are still several motives for possible adoption. Based on the levels of the CSR pyramid, she sees the following potential factors for (non)adoption of ByCycling:

Philanthropic responsibilities- The interviewee sees ByCycling as a valuable mobile app, which helps to control the issues in many different domains, for example, with pollution and sustainability at the workplace (healthy employees).

"Honestly, I am very curious about this app and appreciate the idea very much. I have never seen anything like this (ByCycling), and I think that this (ByCycling) will be a great success. It is for me an

ideal solution to solve many problems what we have in our daily lives: reducing pollution and helping people to stay fit and healthy. I simply think it is absolutely brilliant! People need to take care of themselves as well as contribute to healthy neighbourhood (Organization 5)."

Nevertheless, the respondent also worries about too many cyclists, which she feels is a problem. She even worries that it might be getting too dangerous and that it should not be pushed any further.

"I see cyclists all the time, and I already think that there are too many of them. I mean it is great that people are cycling, but is this really something we should push even further? I am from Amsterdam, and it is busy, not to say dangerous on the streets, and if we will have more cyclists, it would not be better. It would be more dangerous (Organization 5)."

Ethical responsibilities- Ethically speaking, the respondent was concerned if this mobile app would be limiting its user base. She feels that this mobile application does not take into consideration potential users with different health issues. She also feels that it might be potentially seen as discrimination.

"Is everybody able to use this? I mean what if there are like some health issues people have and then it might be difficult to use (...) And there you have your limitation in place already. Some companies would call that discrimination. Especially in United States. I would feel left out, and I do not want anyone to be left out (Organization 5)."

Legal responsibilities – The interviewee felt that legal issues should not be a problem if all the procedures have been appropriately followed.

"Well, I assume that the company (ByCycling) follows a good legal procedure. But all this aside, yeah, should but fine no, the legal things. Of course, we would need to involve the legal department to take the closer look, but that is our compliance rule at all times (Organization 5)."

Economic responsibilities – The respondent of this interview feels that budget and money is not an issue if there is a specific interest in place toward an idea.

"I think money is like time. You always can find ways to best invest it if there is a certain need and interest in place. I already told you that this is not a what our priority is, but in other companies, it is, I mean if it is a priority. It is easy to find the resources (Organization 5)."

However, in the context of her company, she wonders what number of incentives can be offered towards this app. She thinks it might probably be too little to motivate people to take part.

"Based on my long work experience here, it the incentives) probably will not be so much that all the people would want to participate. Surely, you do have a group of people, who will be excited and that is obviously never bad, but honestly, I think it will not take off in my company (Organization 5)."

However, she does agree that using this mobile app can help them to save money.

Yeah. It would definitely help us to save money. Of course, why not? (Organization 5)."

Other – This respondent also mentioned several other points, which can be considered during the potential (non)adoption of a mobile app in a company. For example, she highlights the positive aspect of competition and group pressure.

"I think the competition aspect of it also like helps people to stay more fit and such. Uhm, it is always easier when there are factors or teammates or whatever pushing you towards doing things you might not like, take exercise, for example, I mean if you are tired and you are gonna go running alone, you might think oh but I am so tired and ah, I am not gonna go today, because of this and that, because you are like dependent of yourself and not anyone else. But example if you belong to a group or you go running with a friend; then you just feel guilty if you do not go and .you know then it is much less tricky to feel good about yourself and just sit and watch TV On the couch for the rest of the night (Organization 5)."

She also argues that the necessity of a fun factor and explains the advertisement value of this for this in the company context.

"I mean everyone can say certain things, but if you really can offer fun things to people, this is the best advertisement (Organization 5)."

However, the interviewee is also worried about certain habits people might have and that they are not easy to break. She further elaborates that there is no need to always look for a new thing.

"What I mean is that it is not always necessary to go for the new stuff but use and perfect the old one. Like maybe we can use platform from Fitbit. Maybe it is more user friendly. People are already familiar with Fitbit, so maybe build on that yeah. We even got a massive discount as a company to buy Fitbits. It was like 75% or so (Organization 5)."

Key emergent themes in the CSR context and their effect on the potential adoption

CSR level	Key emergent themes	Effect on adoption in the context of this interview
Philanthropic responsibilities	Pollution, workplace sustainability, placing problems elsewhere	Neutral
Ethical responsibilities	Discrimination, the possible exclusion of people with physical limitations	Negative
Legal responsibilities	Procedure to be followed	Positive
Economic responsibilities	Enough budget if necessary, the possibility of minor incentives	Neutral

Other emergent themes

The positive aspect of competition and group pressure, fun factor as a positive advertisement to the company, changing the habits of the people in a workplace

4.6 Interview number 6 – Travel domain

The sixth interview was conducted with a company working in the travel domain. It is a small travel agency, which mostly organizes trips outside of Europe. They are a small company with approximately 30 people in total and only have one office in Utrecht. Desk research did not deliver any further in-depth information about sustainability as their website is mostly consisting of travel options they offer. The interviewee for this interview works as a Project manager and travel consultant in their Utrecht office.

Context

The respondent of the interview has certain doubts in mind when it comes to the question about sustainability. He feels that his company is not sustainable enough. He feels that as a travel company, it is vital that they concentrate on some fair-trade solutions like fair-trade coffee beans in their coffee machines.

"I think we are not sustainable enough. Can you be sustainable enough nowadays? We are pretty simple, I think. Obviously, because we are a travel agency, our management pays a lot of attention that the coffee beans we use in our coffee automats are fair trade and fruit as well. That is a good thing, I think. We really have made deals with those specific suppliers to organize this (Organization 6).

He also indicates that as a small company, his boss has a lot of decision power, and if he does not like the idea, then it would be impossible to adopt this in the company.

"We are a small company, and my boss has made all those rules and regulations, and as he is the owner of the company, he makes the decisions, and we cannot argue with him if we do not want to risk with getting fired (laughs). Okay, okay maybe that was a little bit dramatic, but this is just how it is. You know, you cannot argue. He is older than I am and not specifically tech-savvy, so he probably will not want it. What I am trying to say here is that it is not always about like the rules per se, but if my boss does not like it or is generally just not going for it, then this kind of becomes the rule right? In the end, he is the boss, and we can recommend all we want, but he makes the final decision. (Organization 6).

Possible reasons for (non)adoption of mobile apps like ByCycling

In this company, the owner has a lot of decision-making power, which means that the (non)adoption would highly depend on his vision. However, the respondent of this interview feels that there are some excellent reasons for both. Based on the levels of the CSR pyramid, he sees the following potential factors for (non)adoption of ByCycling:

Philanthropic responsibilities- The respondent agrees that ByCycling is a very sustainable application and contributes to a sustainable environment, for example, reducing the pollution in the air.

"Well, it is really sustainable application obviously. I am sure that all what they want to do and described on their website they can really do. For example, sure, using less cars would help with eliminating pollution (Organization 6)."

However, he also worries that by using this application, there would be too many problems with cyclists as it is already too busy. He feels that it would mean placing the traffic problem somewhere else.

"No, I think with the traffic it (ByCycling) is not that wonderful as for me it just feels that we are placing the problem from one place to another. It is sometimes really busy and messy on the streets because of cyclists, and I am already avoiding this. And no, I am not going by car, but actually using bike to get

to work and this also sometimes feels better to me. I personally am unable to avoid the rush hours, so cycling in a big city during a rush hour is not fun (Organization 6)."

Ethical responsibilities- This respondent of this interview highlights several ethical problems. First, he is worried that the data would not be protected well enough (privacy). He feels that it is also difficult to protect the data. Furthermore, he feels that companies may get information about you or spy after an employee.

"I am worried about that the names come out and the people will see things, what they are not supposed to. I looked at the website, and I believe there are some things I would be worried about. Technical things too, I think that it would be bit difficult to protect all this (...) It is not pretty okay, that it is so possible for companies to get this information about you, or like you said: Spy after you (Organization 6)."

Second, he worries about certain groups being left out as not everyone will like the application, and this might cause great jealousy inside an organization.

"Not everyone will like it as much, and not everyone have an opportunity to cycle. Or maybe they do not want to. It is a free choice. It might create jealousy even I am afraid (...) So like when I come to work and it can kind of group people. Some people do not make friends easily and when people during the lunch break in cafeteria talk about it, colleagues, who will not take part probably feel bad. If you work with people, you always want to prevent this from happening. It seems like a small detail, but it can easily be trigger for some other issues etc. It is important to prevent any type of wedge among people (Organization 6)."

Legal responsibilities – In the context of this interview, responses about legal responsibilities are tied to the ethical ones, and the biggest concern for this interviewee is privacy and the protection against fraud.

"They also need to make sure that there are no bugs and no compatibility issues. That makes possible to protect it against any sort of fraud. That is what would probably help them to sell. Privacy is always an issue in my eyes. Nowadays, nobody really wants anything to be known about them (Organization 6)."

Economic responsibilities – The interviewee agrees that sick leaves are expensive for the company, and adopting ByCycling helps to keep people more active and overall healthier. He feels that these types of applications can be a potential solution.

"Yes, we have recently had so many illnesses. It really affects the times of a project delivery as well as teamwork, which costs company a lot of money as we are winning less projects. I think we should definitely try if these types of applications could help. Of course, one can never prevent all the diseases, but at least we can try to minimize the occurrences (Organization 6)."

However, he thinks that in his company, there are other investment priorities, which are more critical to the company at this time. It would be problematic for them to find a budget for adopting this mobile app in the coming years.

"As a small company we need to be smart, and I know that it is difficult to find budget for this in the coming years as we are currently growing and employing more people and we need to make sure that we have enough money for other activities (...) Hiring more people, investing in a bigger office and so on. These are some of the examples I can already give to you, and of course, I am sure I am forgetting something important, but these are some things I think are important for us right now (Organization 6)."

Other – The interviewee positively mentioned the simple and automatic process ByCycling offers. He thinks it is user friendly.

"Oh, now that is good. Indeed, if I would need to start doing something manually, then it would get complicated. If I just have it in my pocket and works automatically, then it is very nice (Organization 6)."

Key emergent themes in the CSR context and their effect on the potential adoption		
CSR level	Key emergent themes	Effect on adoption in the context of this interview
Philanthropic responsibilities	Pollution, placing problem elsewhere	Neutral
Ethical responsibilities	Jealousy, the privacy of the system	Negative
Legal responsibilities	Privacy	Negative
Economic responsibilities	Reduction of the cost of sick leaves, other priorities	Neutral

Other emergent themes

The automatic process as a decisive factor

4.7 Interview number 7 – Education domain

The seventh interview was conducted with a company representing the education domain. They mostly concentrate on providing education to the psychologists. This company is relatively small, with 30-40 employees. Desk research did not deliver any further in-depth information about sustainability as their website is showing the different education options they offer. The interviewee for this interview works as an Education Manager in Eindhoven.

Context

Similarly, to interview number 6, the director has a lot of decision-making power in this company. However, the respondent indicates that she can influence and give advice quite a bit as a senior manager.

"He (director) has most of the power, but the good thing is that he listens to the other senior managers and me. So, we can kind of influence him. When I think something is right, I go to him and tell him, and he often listens. So again, formally I don't have the power to say what is going to happen, but people listen to me and also the director. So, if I see things happening in the organization that I think we should do something about, he will definitely listen to me and to the other senior manager (Organization 7)."

Their sustainability-related activities are mostly related to employees. For example, they hire people who might not have the right skill set but invest in them, so that they could develop it accordingly.

"For example, we hire don't really have the right education yet to do work that they have to do. But we offer them like: we pay for your education, you can go to school and learn something, and you can do it while you are working here. That is related to personal development (...). Recently we hired a woman from Brazil. She was educated as a psychologist, so she fits here with her knowledge, but she doesn't speak the language. So, the director decided to give her the opportunity to learn the language (Organization 7)."

Possible reasons for (non)adoption of mobile apps like ByCycling

In this company, the owner has much decision-making power, which means that the (non)adoption would highly depend on his ideas; however, the senior managers can advise and give

guidance on planning. Furthermore, the context of this company is relatively supportive towards the personal development of employees and therefore, sustainable workplace. Based on the levels of the CSR pyramid, she sees the following potential factors for (non)adoption of ByCycling:

Philanthropic responsibilities- The respondent agrees that ByCycling is good for helping with several sustainability-related issues. For example, it can help with pollution in the air and solve issues with traffic and parking.

"Yeah of course. I am often sitting in the traffic. It is driving me nuts, seriously. It (ByCycling) would definitely help to reduce the traffic, so I agree that this is a good point. The Netherlands is so overcrowded, and it is really becoming stressful for everyone. If many organizations are going to use it and people are going to work by bike instead of by car, then it would solve things like traffic, parking problems, pollution. So that could help (Organization 7)."

Ethical responsibilities- The respondent is very excited about the mobile application and feels that it helps the environment, then it should be overall ethical.

"When I think about ethics, I see the positive side like it feels good that you do something for the environment. What could be an ethical limitation (Organization 7)."

However, she also argues that employees are very different, and while one group might already have a sustainable mindset and would be ready for adoption of ByCycling, then another group would not care as much.

"I know that there are people in our company who are really concerned with healthy food, yoga etc. So I think for those people. They are already in this mindset of wanted to be sustainable and wanting to do the right thing. I think for other people I wouldn't really make a difference. I mean people can also be really sceptical about any new thing. For example, the director who has the most to say in the company, he is quite conservative. I'm really doubting if he would the added value of this idea (Organization 7)."

She also doubts if giving employees monetary benefits would make ByCycling more unethical as it would become more about the money than sustainability.

"I understand that this connection is made between money and the app because people, of course, are interested when it's about free days and money. However, the problem could be that it is not about the right thing anymore, and only about the money (Organization 7)."

Legal responsibilities – Considering legal responsibilities, then the interviewee is mostly concerned about two main issues: privacy and monetary benefits. She is questioning how is everything exactly going to work?

"But at the same time have questions about how this is going to work. How does this app work exactly? Is it safe? By the way, is this allowed in the Netherlands to do that? To give money for certain kilometres? I am not doubting you (laughs), but I am just wondering if this is not then considered as a gift. I would really get worried as a company owner or financial manager, because of all the strict rules here in NL. I mean everything monetary is heavily taxed, so would not be better to give people something else like vacation hours or something (Organization 7)."

She also highlights that her concerns about monetary benefits can also be legal and not only ethical.

"Yeah, also the procedure. Like how does it work? It is really important because when you have this running app, it doesn't really matter. There is nothing connected to it, except from your own satisfaction. But this is connected to a reward, like a financial reward. Then it gets tricky, so it's really important to know how does this work out. That could be a legal problem (Organization 7)."

Economic responsibilities – The respondent highlights the value of investing in people, so she argues that in her company, there will always be a budget for essential initiatives.

"Depends on how much money is needed but I think there will be a budget because an organization that doesn't need to make profit. So that's why always have money left for, what I mentioned earlier, to educate people, to invest in people. We always have this budget for things that we think are important that are not connected to our main business. So that wouldn't be a problem, I think. It's more about: is it worth it? Is it really going to work?"

Other – There were also other points, which were highlighted during the interview. For example, she believes that ByCycling is helping people to change their behaviour and creates a specific excitement.

"I feel that this is a great tool to change how people behave. If I am just used to sit to my car and drive to work every day, I am not potentially just taking my bike and cycling to work. People are animals of comfort, and something significant needs to happen to change that. I think that this application can create a specific excitement or hype what makes people think: what if I try it and get my bike instead of getting into my car? It is also fun to maybe compete against each other. However, it also depends on what is your aim with this (Organization 7)."

The interviewee also believes that this initiative can be useful for the image of the company.

"It can also be good for the image of the company. That you can say: this is something we find important as a company. I think that when you, for example, look for a new job it is really a thing companies can present, and it would make me feel that that is a fun place to work at (Organization 7)."

Key emergent themes in the CSR context and their effect on the potential adoption		
CSR level	Key emergent themes	Effect on adoption in the context of this interview
Philanthropic responsibilities	Solving issues with traffic, solving issues with parking, reducing pollution	Positive
Ethical responsibilities	Helping environment, monetary Benefits, not suitable for all groups	Neutral
Legal responsibilities	Privacy, monetary benefits	Negative
Economic responsibilities	Investing in employees	Positive

Other emergent themes

A great tool to change behaviour, positive for the image of the company

4.8 Interview number 8 – Food supply domain

The following interview is conducted with a well-known supermarket chain in the Netherlands and Belgium. They have approximately 80.000 employees. The desk research showed that they are concerned about innovative solutions in their stores and regularly organizing focus group interviews

in order to hear back from people and understand their needs. This store is present in almost any bigger city in The Netherlands; however, this interview was conducted with an operations manager in Utrecht.

Context

The interviewee is very optimistic about sustainable initiatives inside her company. He indicates that there are several different sustainability-related programs available for employees for the customers.

"We have many different programmes here, especially for customers, for example. We educate them to choose for the sustainable products. We want to make sure that shoppers know where their products are coming and who made or grew them. This is really important for our brand. We are growing that network very quickly (...). We have gym payment plans, and also people get fruit baskets monthly to take home. Big fruit baskets for the whole family. If we make a deal with a certain supplier, then it sometimes and quite often happens that we can offer something new to our people to try out at home. Recently, we had that with a coffee supplier. We made a deal with them, and they offered us so many packages of very very good coffee for free, that we were able to share these with all our people in our department (Organization 8)."

She also argues that the company and her colleagues are generally very flexible and interested in new innovative solutions.

"I think my colleagues are the same way. I think people who work here generally like new things, so I would generally believe they would be eager to try too. If that is possible, why not (Organization 8)."

Possible reasons for (non)adoption of mobile apps like ByCycling

While the app adoption environment in this given company is seen as enthusiastic, the respondent also had some concerns. Based on the levels of the CSR pyramid, she sees the following potential factors for (non)adoption:

Philanthropic responsibilities- The respondent feels that ByCycling can help with the health of people, lowering CO2 levels in the air as well as traffic issues. She argued that parking has recently been a problem in her organization, so this mobile application could potentially help them to solve that issue.

"I feel like this can indeed help with health of the people and then also the CO2 in the air will be lower and also the traffic issues (...) some visitors started parking outside the legal parking area and then it was a pretty big mess there and some people got fines and got into trouble. I remember there was even someone whose car was taken away (Organization 8)."

Ethical responsibilities- The interviewee is worried about privacy at both the ethical and legal level. Considering ethical responsibilities, she wants to offer people clarity on the safety of the data.

"How safe really is it? Is the data safe? What information is collected? That all is a factor, important That would be important, and my people would want the certainty in this (Organization 8)."

Legal responsibilities – As mentioned above, ethical responsibilities in the context of this interview already express concerns about the safety of the data. Furthermore, the interviewee brought out GDPR as well as privacy to support the concerns of data protection.

" That is now from this year very important, and all our procedures need to work together with GDPR. That is a very new and important thing, and as I see that this app collects data, then I would definitely have to ask all the GDPR related questions from them (...) Privacy is an important for me as a team leader here in my company. With this app and like with everything else, we need to be very careful. Here in the Netherlands at least, people are anxious about what data would be available about them and where this will be used. From my experience, I have seen that even if I have a legal paper proving that the data will not be used anywhere and shared with anyone and so on, people will still be worried and cautious (Organization 8)."

Economic responsibilities – The respondent agrees that this mobile app can help with reducing the costs of people on sick leaves. However, she is a little doubtful on how to measure the effectiveness. Furthermore, she argues that staff costs are the highest cost in the company and there is a need to control it.

I am sure it would help. Not sure how you measure that thing, but it (ByCycling) cannot be bad. Exercise is always good for you (...). Many companies should (adopt ByCycling) because these are the people who work, who do the work and their success is important. And I do also agree with your previous point. Staff costs are the biggest expense of company. You want to keep those low (Organization 8)."

She also argues that if they could confirm that something new and innovative is valuable for them, then the budget would not be a problem for them.

"If you see a value in something, nothing is too expensive. So, this means if we can make sure it gives us something, we are more happy to take a look and see what we can do (...) your employees will notice the effort (Organization 8)."

She, however, highlights a potential issue with the monetary benefits. She feels that it can get expensive as the incentives would be seen as a bonus in the Dutch tax system, which means a 50% tax to the company.

"I really need to check with a couple of colleagues who know for sure, but I think this is considered as a bonus? If that is the case, then it would be taxed fifty per cent. With vacation days I would need to check too, but probably it is easier. It can get more difficult like this; this is something that can cause problems. A lot of money (Organization 8)."

Other – This interviewee also indicates several other reasons why she would adopt ByCycling. For example, she feels that it could be good for the image of the company.

"I really like when companies take on new initiatives. I really enjoy reading about this, and it always amazes me what people can do and invent. Those companies in my eyes are more interesting, and they get like this certain position in my eyes as well. For example, all these tech giants who always come up with some cool new thing, they make me feel like I want to do that too, kind of makes me feel that I want to be part of their success (Organization 8)."

She also argues that ByCycling would be good for the team spirit inside the company and can induce the possibility of making friends and good teamwork.

"I think you can compete against teams inside the company and as we are doing a lot of these individual activities, we could use this as well. What a great way to improve teamwork! It really would be. More connected to your colleagues. You can become friends, maybe (...). All these types of activities and why we do them are related to help with team building. You are talking more to each other, so it would help you to get to know your colleagues better, and by doing something together, you can also grow as a team (Organization 8)."

Key emergent themes in the CSR context and their effect on the potential adoption

CSR level	Key emergent themes	Effect on adoption in the context of this interview
Philanthropic responsibilities	Better health of employees, solving traffic issues, lowering pollution in the air	Positive
Ethical responsibilities	Safety of the data	Negative
Legal responsibilities	Privacy, GDPR	Negative
Economic responsibilities	Reducing the staff costs (sick leaves), if valuable, then there is a possibility of budget	Positive

Other emergent themes

Positive for the image of the company, induces team spirit and teamwork

4.9 Interview number 9 – Banking domain

The ninth interview was conducted with an employee of one of the biggest banks in the Netherlands. This is a big organization, with approximately 45.000 employees. The desk research showed that this bank is active in several sustainability-related initiatives; for example, they are investing in sustainable neighbourhood initiatives. Also, their technology is created to be accessible, innovative, and sustainable. The offices of this bank are available widely all over the Netherlands, but this interview took place in their headquarter in Utrecht. The respondent works as a Project manager.

Context

The respondent describes their company as very innovative. She indicates that there are always possibilities and new ideas, which can be developed to something bigger.

"We do a lot of innovative things here, yes. I hear about new ideas and possibilities almost daily. Something can start off really small, and it can really grow into something bigger. There are many options people have here (Organization 9)."

The interviewee also highlights that everyone can offer ideas, and they have regular brainstorm meetings to think about different issues. Sustainability is especially important for them.

"Everyone can really say what they think and feel here. We also have certain meetings every couple of months, where we really brainstorm and think about how we can use new ideas or whatever. I really like that here no one will be like judged, and this is why we often have good ideas. Sustainability is often discussed at those meetings as well as it is our core value (Organization 9)."

Possible reasons for (non)adoption of mobile apps like ByCycling

While the app adoption environment in this given company is seen as enthusiastic, the respondent also had some concerns. Based on the levels of the CSR pyramid, she sees the following potential factors for (non)adoption in this interview:

Philanthropic responsibilities- The interviewee is very enthusiastic about reducing pollution in the air and considers ByCycling as a perfect app for that.

"I think it really would help with motivating people to use cycling instead of using a car. It is specifically good for reducing the pollution in the air. The situation is really bad right now with pollution, so I think this app can help a lot (Organization 9)."

She also agrees that this application has a fascinating concept, and helping companies to reduce sick leaves is a great idea.

"Admirable, I have not seen application thinking of reducing the sick leaves. That is very interesting to me, honestly, as this is such an interesting way to do so. Health is obviously so important to us all, and without it, we have nothing (Organization 9)."

Ethical responsibilities- Considering ethics, the main issue for this respondent was about inclusion. She is worried if it would be unethical if all the people would not be able to participate.

"I would think it might be an ethical problem when we create some sort of exclusion. I am not sure if anyone can easily participate. This can be for various reason like living too far away, or age or fitness or anything. Main point is that if it creates exclusion, it might be an ethical problem (Organization 9)."

Legal responsibilities – As many respondents have already indicated, privacy also remains an issue for this respondent.

"When I look at the interface of this app, I see that there are several potential legal issues. I mean there is a map you even share the route. Plus, you have all the timings when somebody comes, and somebody goes. I do not think we can ask people to show the details where they are and what they do like that. This will compromise the privacy of our employees (Organization 9)."

Economic responsibilities – The respondent agrees that this mobile app can help with reducing the costs of people on sick leaves.

"I think this will definitely help us to save money on the sick leaves. Absolutely, no question in my mind (Organization 9)."

Key emergent themes in the CSR context and their effect on the potential adoption		
CSR level	Key emergent themes	Effect on adoption in the context of this interview
Philanthropic responsibilities	Reducing pollution in the air, helping reduce the number of people on sick leaves	Positive
Ethical responsibilities	Exclusion of particular groups of people	Negative
Legal responsibilities	Privacy	Negative
Economic responsibilities	Helping the company to save money on sick leaves	Positive

4.10 Interview number 10 – Logistics domain

The tenth interview is conducted with a company representing the logistical domain. It is a massive company with approximately 550.000 employees worldwide. Desk research showed that a general sustainable outlook, as well as employee sustainability, is fundamental to them, and they take extra steps to make sure that necessary actions can be taken. The interview is conducted with a Project manager working in their Schiphol office.

Context

The respondent highlights that they are a sustainable company; however, they are currently not looking for any further developments.

"I mean that we do not need to always go for a new cool thing. Our company has all the processes in place, and we are doing well. We already are sustainable, and some new app will not help with that (Organization 10)."

However, he needs to indicate that they indeed are a very sustainable company and sometimes do even more than needed.

"Yes, we are (sustainable). We always do what is needed and sometimes even more (...). I think our systems are enough sustainable. We offer our clients the best, fastest and coolest solutions anyway (Organization 10)."

Philanthropic responsibilities- The respondent agrees that ByCycling can help with reducing pollution as people would cycle more.

"Yes, I think it is good idea if people would cycle more. Obviously, not using a car would help with pollution and pollution is bad and getting worse yearly (Organization 10)."

However, considering traffic, he feels that it will be placing the problem somewhere else.

"I think this is a good example of placing a problem to somewhere else with the traffic. The Netherlands is crowded anyway, bikes or cars or people and ByCycling will not help to reduce traffic like this (Organization 10)."

Ethical responsibilities- The respondent of this interview is ethically concerned about ByCycling offering monetary benefits.

"I personally would not offer money to make people do something. It does not have a good taste. It is weird in my eyes (Organization 10)."

Legal responsibilities – The most prominent legal issue for this respondent is related to privacy. He highlights that it would be legally impossible to adopt this app as it is in their company.

"I think Privacy is a very important reason why I would not adopt this app. Legally impossible in our company (...) It would not be possible for us to adopt as this is an easy way how we may be leaking the data of the employees. If something happens, of course, but we do not want to take this risk (Organization 10)."

Economic responsibilities – The respondent argues that as they have their processes already in place, he sees little economic value of ByCycling.

"I really do not think this will be some huge money saver. I would assume that if we would be able to pay incentives, then it would kind of event out the amounts, and it will be still the same. I think, either way, we would lose the money risk (Organization 10)."

Key emergent themes in the CSR context and their effect on the potential adoption		
CSR level	Key emergent themes	Effect on adoption in the context of this interview
Philanthropic responsibilities	Reducing pollution, placing traffic issues elsewhere	Neutral
Ethical responsibilities	Offering monetary benefits is not ethical	Negative
Legal responsibilities	Privacy	Negative
Economic responsibilities	Does not help to save money	Negative

4.11 Results

In this paragraph, the key emergent themes, as well as their effect on (non)adoption of ByCycling, will be analyzed. In the above paragraphs, the findings from all the interviews have been presented; however, it is now possible to analyze them more structurally. First, the influence of the context of the company will be discussed. Second, the key emergent themes will be presented and discussed in the context of the CSR pyramid, which helps to find answers to the sub-questions of this thesis. Finally, the key themes which occurred outside of the CSR framework will be discussed in further detail.

4.11.1 Contexts of the companies and their influence

The companies chosen for this research were very different; however, the influence and importance of the context of the company is still clearly distinguishable. As argued by Liang et al. (2007), the general support of the management and the company is crucial. Furthermore, the motivation of the employees is also significant and should be induced, for example, by agreed benefits or gamification inside the organization (Brauer et al.,2016). For example, the respondents of this research were more open to the adoption of ByCycling if the general attitude towards new technologies and sustainability-related activities in the company was positive. That makes the interviewees of this research also see and consider ByCycling as something they could potentially adopt in their company. However, it was clear that if the company or the management did not invest

much time in sustainability-related activities or new technologies, then also the respondents of this research were more sceptical towards adopting ByCycling.

Furthermore, scepticism also arose when the decision-making power was mostly related to only one individual, often the director or owner of the company. Managerial actions have the potential to influence a wide range of groups and individuals within, and outside the company (Wittke, 2014) and have, therefore, a crucial role in adopting new technologies. This factor made some interviewees doubtful if the adoption of this new sustainability-related app would be possible if the manager would be doubtful about the idea in general.

4.11.2 Corporate social responsibility pyramid and its influence on the adoption of ByCycling

This thesis previously presented four sub-questions for sustainability-related mobile app adoption. These questions will now be structurally analyzed through answers of the interviewees and emergent themes considering every level of CSR pyramid.

Question 1: Which effect do philanthropic responsibilities have on adopting a sustainability related mobile app?

Question 2: Which effect do ethical responsibilities have on adopting a sustainability related mobile app?

Question 3: Which effect do legal responsibilities have on adopting a sustainability related mobile app?

Question 4: Which effect do economic responsibilities have on adopting a sustainability related mobile app?

Philanthropic responsibilities, often seen as free a contribution to society (Carroll, 1991), had a mostly positive effect on the adoption of the ByCycling app. The answers of five respondents reflected a positive effect on adopting ByCycling, four respondents gave answers, which can be considered neutral, and one respondent was expressing negativity on the effect of philanthropic responsibilities in the framework of adopting sustainability-related mobile apps. The total overview of the emergent themes and effects can be seen in the below table.

Respondent	CSR level	Emergent themes	Effect on adoption
1	Philanthropic	Reducing traffic, possible prevention	POSITIVE
2	Philanthropic	Environmental benefits	POSITIVE
3	Philanthropic	Placing problem somewhere else, pollution can be reduced through other ways	NEGATIVE
4	Philanthropic	Responsibility, the pressure to be sustainable	NEUTRAL
5	Philanthropic	Pollution, workplace sustainability, placing problems elsewhere	NEUTRAL
6	Philanthropic	Polluting, placing problem elsewhere	NEUTRAL
7	Philanthropic	Solving issues with traffic, solving issues with parking, reducing pollution	POSITIVE
8	Philanthropic	Better health of employees, solving traffic issues, lowering pollution in the air	POSITIVE
9	Philanthropic	Reducing pollution in the air, helping reduce the number of people on sick leaves	POSITIVE
10	Philanthropic	Reducing pollution, placing traffic issues elsewhere	NEUTRAL

Leeb & Rudeberg (2014) argue that nowadays, businesses are taking more initiative than the cities. They note that in some urban areas, the roles have changed, and people and companies are well educated, and they do want more than the government can offer. That reflected on the answers of the respondents of this research. Interviewees were very educated on the issues on sustainability, and there are many different essential sustainability-related arguments like reducing the usage of cars and limiting pollution in urban areas. Diminishing issues with parking and traffic were also mentioned as a motivation for adopting ByCycling. Furthermore, it was also discussed that the health of the

employees is critical, and as this service helps potentially reduce the days of sick leave, companies could benefit from this mobile app.

Although a minority, some respondents were doubting if ByCycling would help with reducing the issues like pollution and traffic in the cities. Some of the interviewees feel like that would mean placing the issues somewhere else, which is not a solution either. Leeb & Rudeberg (2014) discussed the difficulty of implementing CSR policies in the cities as the objectives are often confusing and lack the agreement between the stakeholders. This reflected in the research as some respondents indicated that at times cities pressure companies with their new policies, and it will not always be possible to comply with the rules so fast. Furthermore, it was argued that sometimes it is not necessary to invest in a new app or a service as there are many other ways to comply with the philanthropic responsibilities.

Ethical responsibilities and their effect on mobile app adoption

Implementing ethical responsibilities shows that firms further respect standards, norms and activities and live by the “spirit” of the law not just execute the law (Carroll, 2016). In the context of this thesis, ethical responsibilities have a negative effect on mobile app adoption. Only 1 out of 10 respondents had a more neutral opinion in the context of their interview. The total overview of the emergent themes and effects can be seen in the table below.

Respondent	CSR level	Emergent themes	Effect on adoption
1	Ethical	Sustainability and ethics through other channels	NEGATIVE
2	Ethical	Employees and potential extra requests, an obligation to use	NEGATIVE
3	Ethical	Possible exclusion of people with physical limitations, age as a factor of discrimination	NEGATIVE
4	Ethical	Control, scepticism	NEGATIVE
5	Ethical	Discrimination, the possible exclusion of people with physical limitations	NEGATIVE
6	Ethical	Jealousy, the privacy of the system	NEGATIVE

7	Ethical	Helping environment, monetary benefits, not suitable for all groups	NEUTRAL
8	Ethical	Safety of the data	NEGATIVE
9	Ethical	Exclusion of particular groups of people	NEGATIVE
10	Ethical	Offering monetary benefits is not ethical	NEGATIVE

Privacy is not only a legal question but also strongly relates to ethics. Many respondents were concerned about potential privacy issues and felt that there might also be problems with the protection and safety of the data. Nah et al. (2005) argue that privacy and security are one of the most critical factors for companies to take into account while adopting new mobile technologies. Furthermore, some respondents were cautious about adopting central company-wide programs as the employees might feel an obligation to use them and feel being controlled by them. Moreover, some respondents were questioning if offering monetary benefits is ethical or might cause potential problems. A significant ethical aspect discussed in several interviews was related to the potential exclusion of certain groups of employees. Factors like age, disabilities, gender were all mentioned as factors that might reduce the possibility of adopting ByCycling. This is an issue because it compromises the stakeholder value co-creation, which is essential to achieve harmony in set objectives (Freeman, 2004).

Legal responsibilities and their effect on mobile app adoption

Obeying to different types of laws is necessary to be a social contract of businesses and society, where companies can pursue their goals without harming others (Carroll, 1991). Legal responsibilities have a negative effect on the adoption of ByCycling. Only one respondent out of 10 was more optimistic about the effect of the legal responsibilities. The total overview of the emergent themes in the context of legal responsibilities and their effects can be seen in the table below.

Respondent	CSR level	Emergent themes	Effect on adoption
1	Legal	A threat to own products, privacy and judgment from management	NEGATIVE
2	Legal	Privacy concern	NEGATIVE
3	Legal	New is scary and risky, privacy	NEGATIVE
4	Legal	Policies, pressure	NEGATIVE
5	Legal	Procedure to be followed	POSITIVE
6	Legal	Privacy	NEGATIVE
7	Legal	Privacy, monetary benefits	NEGATIVE
8	Legal	Privacy, GDPR	NEGATIVE
9	Legal	Privacy	NEGATIVE
10	Legal	Privacy	NEGATIVE

There was an essential underlying legal factor that was concerning almost all the interviewees, and that was privacy. This is a significant factor for non-adoption as employees do not want to share their personal data with their employer, and often companies are not allowed to see it. These rules are even stricter now with the introduction of GDPR (General Data Protection Regulation), which actively regulates all the data gathered and shared. Moreover, it was mentioned that ByCycling could be a potential threat to their innovative technological products, therefore according to the internal regulations in their company, they would simply be unable to adopt ByCycling for that reason. Monetary benefits were mostly discussed regarding ethical responsibilities; however, they were also discussed considering legal responsibilities because it was a question if, in the Netherlands, it would

be legally possible to pay employees for cycling. However, one respondent also mentioned the legal pressures cities have on companies, which may make them look for particular solutions to comply with the rules and can have a positive effect on the adoption.

Economic responsibilities and their effect on mobile app adoption

Carroll (1991) argues that all other business values rely strongly on economic responsibilities, and without them, the other levels of the pyramid become challenging to achieve. In the context of this research, economic responsibilities have a mostly positive effect on the adoption of ByCycling. The answers of 5 respondents reflected a positive effect on adopting ByCycling, three respondents gave answers, which can be considered neutral, and two respondents were expressing more negative ideas on the effect of economic responsibilities in the framework of adopting sustainability-related mobile apps. The total overview of the emergent themes and effects can be seen in the below table.

Respondent	CSR level	Emergent themes	Effect on adoption
1	Economic	Investment priorities, positive outlook towards monetary benefits	NEUTRAL
2	Economic	Budget priorities, positive outlook towards monetary benefits	POSITIVE
3	Economic	Reduction of the cost of sick leaves, economic effectiveness, budget priorities	NEGATIVE
4	Economic	Ease of adoption, investing in employees and sustainable workplace	POSITIVE
5	Economic	Enough budget if necessary, the possibility of minor incentives	NEUTRAL
6	Economic	Reduction of the cost of sick leaves, other priorities	NEUTRAL

7	Economic	Investing in employees	POSITIVE
8	Economic	Reducing the staff costs (sick leaves), if valuable, then there is a possibility of budget	POSITIVE
9	Economic	Helping the company to save money on sick leaves	POSITIVE
10	Economic	Does not help to save money	NEGATIVE

Nah et al. (2005) suggest that cost-benefit analysis is often needed to examine the economic benefits and after that can be determined if the investment is valuable and will help the company to save money in the long term. That also reflected in the answers of the respondents. Considering the specifics of ByCycling and their aim to reduce the sick-leaves and therefore lower the staff costs for the companies, then the answers discussing that were optimistic. Respondents felt that ByCycling could be a valuable tool in order to help to save money. Several interviewees also indicated that if the application is good for the company, then the budget and money will be found, and the application would be adopted. A couple of people strongly agreed that it is essential to invest in employees and their well-being. However, on the contrary, respondents were not quite sure how to measure the effectiveness of this application and remained cautious about that aspect in general. Furthermore, some companies indicated their other economic priorities, which would be considered more urgent to invest money in. Therefore, a cost-benefit analysis would possibly help.

Other emergent themes

It was expected that during the interview, more separate emergent themes would appear. These themes did emerge from 6 interviews and are valuable in order to understand further (non)adoption of sustainability-related mobile apps in companies. We can consider these themes to have a positive or negative effect on the adoption of ByCycling. Considering positive themes, one of the arguments considered the psychology of the employees and their habits. Nah et al. (2005) argue that the personality and habits of the employees have a significant role in mobile app adoption. Some respondents suggested that it would be challenging to change the behavioural patterns of the employees, and therefore this is a reason for non-adoption. However, on the contrary, many of the respondents argued that ByCycling could be an excellent tool to help people to change their habits, and that is a great reason to adopt this application. That also relates to value co-creation as Borri and Monda (2020) argued that the strategic use of technology (e.g. sustainability-related mobile apps) creates new ways of interacting; sharing the same goal (e.g. sustainability) creates new practices and new habits.

The second emergent theme considered to have a positive effect was the image of the company. It was suggested that companies who adopt innovative solutions and work with them become more attractive to employees, and it can be used as a tool for marketing. Often, in a nowadays competitive environment, being able to offer innovative solutions inside of an organization gains even more critical as companies compete for the most valuable employees (Bergschöld & Källgren, 2014). It is also especially important considering CSR related activities, as Šontaitė-Petkevičienė (2015) recommends that CSR and corporate reputation are positively correlated. It was argued that innovation is always exciting and fun for people, and this makes ByCycling attractive and gives an excellent reason to adopt it. Moreover, the third emergent positive theme is related to the fun factor and suggests that ByCycling can also help with team building activities, helping colleagues to spend more time together, which can also help with bonding inside the organization.

Furthermore, the fourth emergent theme is strongly related to the fourth and considers the automatization of the ByCycling app. It was discussed that the ByCycling app is built in a very user-friendly way, which means that more people would want to use it, and this could be a potential reason for adoption. Nah et al. (2005) also argue that efficiency, as well as effectiveness, are fundamental reasons while adopting new technologies in the companies. New technology needs to be easy to use and work well to offer the necessary value for potential users.

The fifth emergent theme was related to the infrastructure of the mobile network and can be considered having a negative effect on the adoption of ByCycling. It was argued that sometimes the

idea of the app could be attractive; however, in reality, it does not work well because of the lack of infrastructure supporting the use of this mobile app. This relates to the importance of the stakeholder theory as adopting new technologies and machinery often needs good cooperation and trust between all the stakeholders, and therefore it is seen as an endorsement of value co-creation in the modern economy (Harrison & Wicks, 2013). Furthermore, Freeman (2004) argues that companies must look at the stakeholder network as a whole if they want to create value that makes the economy better. If that is not done while adopting an app, it is possible to make any mobile app look not trustworthy, and that makes people lose interest and trust, which would give a reason for non-adoption.

5. Conclusion

This final chapter leads the thesis to a conclusion, recommendations, and reflections. Based on the interviews with the respondents, the central question can be answered:

What motives do companies have to adopt or not adopt sustainability-related mobile applications based on Corporate social responsibility theory?

This research focused on sustainability-related mobile app adoption. The qualitative research was conducted based on an app called ByCycling. As this app offers various benefits for different stakeholders and strongly supports CSR activities, this thesis started with explaining Stakeholder theory as well as the CSR theory. While the importance of CSR is growing (Carroll, 1991 & 2016) and the interests of multiple stakeholders should be kept in mind (Freeman, 2004), many companies seem to struggle to find a way to adopt necessary practices and technologies. ByCycling potentially offers a solution for several CSR-related issues in the companies and can serve as a powerful tool to satisfy the potential motives for app adoption. In order to answer the main research question, qualitative research was conducted with the companies located in different Dutch urban areas. Furthermore, to understand the potential motives for sustainability-related mobile app adoption, four subquestions were formulated. These questions evolved from the CSR pyramid and expressed the effect that a specific level of the pyramid has on the app adoption.

- **Question 1:** Which effect do philanthropic responsibilities have on adopting sustainability-related mobile app?
- **Question 2:** Which effect do ethical responsibilities have on adopting sustainability-related mobile app?
- **Question 3:** Which effect do legal responsibilities have on adopting sustainability-related mobile app?
- **Question 4:** Which effect do economic responsibilities have on adopting sustainability-related mobile app?

5.1 Motives for (non) adoption of sustainability-related mobile apps

Sustainability-related apps like the ByCycling app are developed to help urban areas achieve their sustainability goals. The ByCycling app aims to satisfy several stakeholders as its purpose is to solve various urban issues. In order to understand if these apps are also perceived as useful by their potential users, this thesis used the levels of CSR pyramid to understand the effects they have on sustainability-related app adoption. Because it is essential for most companies to comply with the CSR theory, understanding what influences a company's adoption of a sustainability-related mobile app in the perspective of CSR would potentially help the creators of these apps. Furthermore, qualitative research helped the respondents express their thoughts on the (non)adoption and explain their reasoning in further detail – this also allowed discussions of the (non)adoption motives outside CSR. In the framework of this research on the ByCycling app, philanthropic and economic responsibilities have a positive effect on the adoption of a sustainability-related mobile app. Therefore, the motives of sustainability-related mobile app adoption in a company are related to those two levels.

Companies are educated on issues of sustainability, and there are many strong philanthropic motives for adopting the ByCycling app: e.g., reducing the use of cars, limiting pollution in the cities, and diminishing issues with parking. Considering the specifics of the ByCycling app, the health of the employees is very important to companies and is seen as a definite motive to adopt the app.

In the framework of this research on the ByCycling app, economic benefits are evident. The possibility (and aim) to reduce employee sick leave and therefore lower costs for the companies is an important motive. Respondents felt that apps like ByCycling could be a valuable tool to help save money. Several interviewees also indicated that if the app is good for the company, then the budget will be found and the app adopted. A couple of interviewees strongly agreed that it is essential to invest in employees and their well-being.

Nevertheless, there were also several motives for not adopting the ByCycling app or other sustainability-related apps. In the framework of this thesis and based on the CSR pyramid, ethical and legal responsibilities have a negative effect on adopting the ByCycling app. Therefore, the motives of non-adoption are specifically related to these two levels.

Many respondents were concerned about potential privacy issues and felt that there might be problems with the protection and safety of the data collected by the app. Therefore, privacy is an essential motive for not adopting apps like ByCycling. Moreover, the interviewees were cautious about adopting central company-wide programs as the employees might feel an obligation to use them and

fear of being controlled or spied on. Respondents also questioned if offering monetary benefits is ethical or might cause problems. A significant ethical motive discussed in several interviews was related to the potential exclusion of certain groups of employees. Factors like age, disabilities, and gender were all mentioned as factors that might reduce the possibility of adopting the ByCycling app. This compromises the stakeholder value co-creation, which is vital to achieving harmony in setting objectives and contradicts the belief that companies should try to be considerate towards all their stakeholders (Freeman, 2004).

Several respondents argued that privacy is not only related to ethics but also overlaps with legal responsibilities. It might be legally challenging to adopt the ByCycling app because companies are often legally not allowed to collect data from their employees. GDPR and the new regulations related to it are additional complications. Moreover, offering monetary benefits can also be a motive for non-adoption because it might be costly or legally complex to do so in the Netherlands.

As discussed earlier, this research also revealed other potential motives that companies might have when adopting sustainability-related mobile apps like ByCycling. For example, it was argued that these apps could be helpful to change the psychology of potential users. It was also suggested that the adoption of these apps could be used as a marketing tool. It was further argued that adopting these mobile apps helps companies look attractive to potential employees. Furthermore, if people like the app and will use it, it can also help with team-building activities inside the company and can, therefore, unite employees.

5.2 Discussion and recommendations

In this thesis, I aimed to understand how Corporate social responsibility will influence sustainability-related app adoption in companies located in urban areas. I was interested in that specific stakeholder group because companies have an essential role in the cities, and their actions can shape the future of an urban area. Further research can also determine what motives do other stakeholders have to adopt sustainability-related mobile apps. That would allow us to understand the network of stakeholders related to sustainability in urban areas and help app developers to cover their specific needs.

Based on the (non)adoption motives presented above, sustainability-related apps like ByCycling could potentially be a useful tool to help companies achieve their corporate social responsibility goals. Meanwhile, they are also able to satisfy the expectations of several stakeholders at the same time (e.g., cities, employees and companies). The usage and development of these apps can help to shape the spatial planning in the Netherlands to solve issues with sustainability in the

urban areas. This research was explicitly using ByCycling as an example of the sustainability-related app, but there are other apps, for example, Strava, which has already been proven to help with policymaking goals in the urban areas. The data collected from these apps can contribute to identifying problems and providing solutions. Furthermore, the Netherlands is a country which is already using cycling as one of the main ways of transportation. This creates a more positive bias towards cycling in general, as it is already part of the local culture. Therefore, this can make respondents think more positively over adopting ByCycling as it already correlates to reality.

Nevertheless, there are also potential issues with these sustainability-related apps. First, privacy and security are essential factors to consider while adopting any app. Therefore, mobile app developers should thoroughly work on avoiding any security risks, which can potentially be very damaging for all the stakeholders involved. Second, the behavioural patterns of people are difficult to change, and in order to promote using the app, it is crucial that stakeholders like management of the company and city support the idea and also become advocates and promoters of the app. The role of the cities is not to be minimized as they can formulate clear CSR related policies, which helps companies to understand their role and goals. Additionally, urban areas are also part of the internet and connectivity management and need to take it seriously. Good network and mobile service are essential for adopting more mobile apps in general. In order to conduct a clear plan, it requires a clear vision to be presented by the app developers and needs to consider the needs of several stakeholders. The app developers should also be flexible and communicate with their potential users and promoters as much as possible, because as companies and other stakeholders are different from each other, then there should be possibilities to customize the app accordingly. It is also crucial to consider the context of the companies, which strongly influence the possibility of app adoption. The research clearly showed that if the management is supportive of the innovative ideas, then the respondents were more open to the idea of adopting an app. Because of the context of the company, it is also possible that they are not interested in innovating at all, which makes selling even an excellent idea difficult. Therefore, it is recommended to study the potential companies in further detail and understand, which companies may potentially have more interest in innovation activities in general.

This thesis shows that sustainability-related apps like ByCycling still have their drawbacks, but most respondents recognized that they have the potential to grow and help with sustainability among several stakeholder groups. Innovation and the adoption of sustainability-related mobile applications remain subjective, but this research has answered: *What motives do companies have to adopt or not adopt sustainability-related mobile applications based on Corporate social responsibility theory?*

5.3 Limitations

Inescapably, this research has several limitations that could influence the outcome. First, the methodology and the use of CSR pyramid as a concept limits the generalizability of the adoption of sustainability-related mobile apps as not all of the motives can be related to the CSR theory. Furthermore, the (non)adoption motives depend highly on the specifics of the app itself.

Another significant limitation is that this study did not engage all possible stakeholders. For example, it would have been valuable to talk with the people representing the municipality regarding the sustainability questions. The perspective of these stakeholders would have given the answers of the interviewees more depth and clarity, especially those related to the policy-making and the specific pressures the respondents claimed to have. This aspect would have given this Master thesis the opportunity for further comparisons and generalizations.

Further, it is necessary to mention that it is difficult to generalize based on ten in-depth interviews. In order to avoid arbitrariness, more people need to be interviewed to gather more data. It would also be interesting to use quantitative research or the combination of quantitative and qualitative research. Moreover, the participants were interviewed based on a semi-structural questionnaire. This type of questionnaire makes it more difficult to compare results because the course of the interviews also depended on personal interpretations. For this study, however, it was essential to use a half-structural questionnaire because of its ability to discover other important adoption motives outside of the CSR framework.

As qualitative research relies on the ideas and perception of the researcher, researcher bias was also a limitation. During the interviews, it is likely that the interviewer subconsciously influenced the interview procedure and flow by using particular phrasing, expressing emotions, and asking specific questions. Although trying to be as objective and unbiased as possible, the researcher had a personal interest in the ByCycling app and completed an internship in the ByCycling organization. This likely resulted in a more positive attitude and may have caused the interviews to have a more adoption-positive bias.

5.4 Recommendations for further research

In order to investigate the adoption process thoroughly, further research is necessary. It is of great value to involve more different stakeholders in the interviewing process so that it would be possible to understand different stakeholders as well as the influences they might have over each other. It is also essential to understand how policy-making in different cities will affect the adoption of sustainability-related apps like ByCycling. Along with that, it is also vital to incorporate more respondents, so that further generalizations could be possible.

This research was conducted based on the companies in the Dutch urban areas, but it would also be fascinating to understand if an application like ByCycling would also work in other countries and how would people feel about adopting this. Similar research in another country can bring different results, because of the different policies and the culture as not all the countries are using cycling as an essential form of transportation. Therefore, exploring other countries is highly recommended.

In this study, the researcher tried to involve companies with a different background as this allows the companies working in several different business areas to express their feelings about adopting sustainability-related apps. However, further research can be more clustered and investigate the companies working in similar or same business areas. Also, it would be possible to bring in a geographical focus as the different urban areas have different possibilities and interests even in the same country.

5.5 Reflection on the research process

This is the final chapter of this thesis, and I will take some time to reflect on the entire research process. The research process has been fun, although this thesis was not written in a year. The reasons behind this have been personal and mostly work-related. One cannot excel in work and deliver an outstanding thesis while on short timelines, and this is the reason why individual decisions needed to be made and the thesis took longer than expected.

My research started with an internship at ByCycling. From the start, I had a specific vision for my thesis, which remained unchanged throughout the process. I wanted to work with an innovative technological start-up, but I was also interested in sustainability and people in an urban environment. ByCycling offered me an excellent opportunity to combine all my interests as their app combines several aspects I wanted to include in my research. Putting all this on paper, however, was somewhat of a challenge because there were several theories, all of which seemed very interesting. However, finally, it was understood that in order to help ByCycling to grow, it was good to know if their app is

of any interest to potential users. Furthermore, to give this thesis more focus, it needed to be analyzed excitingly and practically, which is the reason CSR theory was chosen.

The first ideas, as well as the theory and methodology, were already presented in 2017, but then the tricky part started. Working on a conceptual framework, the recipe that ties this all together was complicated. There is no shame from my side to admit that it was difficult because, through challenges, we grow, and sometimes things just take time. When you also add in a job in a high-paced environment, things were not easy. Obviously, the latter was a personal choice, and I just needed to persevere. Finally, the pieces started to come together, and the thesis got the shape, form, and flow it has today.

A qualitative methodology was chosen with which to conduct this research. I also wrote my Bachelor thesis based on qualitative research. I truly believed that, in the framework of this thesis, it was essential to understand the argumentation behind the decision making in detail and that using interviews was the right choice. Conducting the interviews was easy and fun as was finding the respondents. It was great to hear people talk, take an interest in the topic, and explain the argumentation behind their statements. After the transcriptions were written, specific patterns and the key emergent themes started to evolve. It was great to see the results coming together.

Describing the findings and results was easy as I had taken notes throughout the interviewing process and had a clear vision to present the results using CSR pyramid. Nevertheless, this still took some time because of my full-time job for the past three years. Moreover, there were some significant breaks between interviews and coding, and sometimes I needed to refresh my memory.

I can easily say that the research process was fun, but at times challenging. I love writing a lot, but I was simply having an issue with time. Looking back now, I was probably a little impatient to enter the job market – I should have finished my thesis beforehand. Nevertheless, there are no regrets because my work experience has given me a new lens to look through. When I look back at what I wrote three years ago, I can now express my thoughts in a more refined manner. As a perfectionist, I feel that this thesis will never be fully finished, but it has come to a point, where hopefully, essential aspects have been covered. I have learned a lot about how to conduct research and how to overcome problems like finding focus and a suitable framework. Also, it has been precious for me to meet many different people and to listen to their vision of sustainability and sustainability-related apps.

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