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**VR Passengers divisions audience interest towards
receiving personalized data related to sustainability in
VR's digital channels**

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<p>Corporate social responsibility is a term in which practices and policies by a corporation intent to have a positive influence in the world. Studies show that corporate social responsibility give businesses competitive edge, add business value, and lift organizations brand and image. Consumers can be activated to be a part of this change if they are empowered and can help to drive sustainable production and consumption in their role.</p> <p>Today more than ever companies and consumers are aware of sustainability and its importance towards societal wellbeing. Companies recognise stakeholder engagement is a critical step in implementing sustainability, however consumer alone are not the key to fight climate change, neither is the responsibility solely on corporations or manufacturers. They key is to manage sustainability efforts together, and joint efforts must be made.</p> <p>Technology has brough data closer than ever before in the last few years for companies and consumers and as environmental data interests both parties the thesis chose to investigate if customers personal sustainability data has any impact on VR's own audience through their digital channels.</p> <p>VR Group chose to implement a CO²-calculator as a sustainability related interest measure to find how it impacts their audience. As CO²-calculators have become more popular in the recent years to help draw attention to more actionable and fact driven communication between companies and their stakeholders about the ways on reducing their carbon footprint together, it felt as a natural step to target to VR's audience.</p> <p>The results of the study imply that among VR's customers there is rising interest in personal data being used as a sustainability related information, and customers find such data useful to have and have willingness to share it forward both within personal channels and in social media channels. For the future the results indicate that authentic and purposeful use of personal data related to sustainability has its audience and interests among VR customers.</p> <p>As the concept of corporate responsibility has started to mature and become a mainstream topic in most organizations, the future belongs to companies that can be engaging in bringing forth more transparency towards their stakeholders.</p>	
Keywords Corporate social responsibility, Carbon dioxide, Customer engagement, User-centric design	

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Abbreviations

CSR	Corporate social responsibility
CO ²	Carbon Dioxide (emission calculations)
CE	Customer Engagement
UCD	User-centric design

1 Introduction

The first chapter of the thesis acts as an introduction to the thesis subject and the chosen research question for the study. This chapter introduces the thesis objective in more detail. The expected outcomes explain the reasons behind the commissioned study and presents the thoughts of the thesis writer of their own expectations and outcomes for the research. The main research and supporting sub-questions are introduced and the significance of the study explained. Finally, the structure of the thesis document is opened to the reader in order to follow up each chapter and its input along the chosen research project.

1.1 Introduction to the thesis subject

The subject of this development-oriented thesis is to understand how Corporate Social Responsibility (CSR) can be developed within VR's customer facing channels through the development of a CO²-calculator and following its impact on VR's audience. VR Group a Finnish state-owned corporation and its passenger services division acts as the commissioner of the thesis. The author works as a team leader of VR's own sales channels digital development in the customer front and has increasingly been interested in CSR and sustainability through her work, studies, and personal life. In recent years, CSR and sustainability have become core of business activities globally and business of all sizes have adapted to CSR and sustainability drivers to fulfil the expectations of their stakeholders, especially customers (Gutterman, 2020, 8). VR as a known Finnish company is motivated to adapt its business towards a more sustainable future for both its customers and for creating societal good through its business.

Companies have the possibility to address and diffuse environmental and social issue with stakeholders by better managing their expectations; addressing concerns, showing more visibility and knowledge of which issues are addressed now and which at some point. Visibility makes stakeholder communication stronger and could make stakeholders into company advocates. As customer loyalty provenly effects business profitability it is important to make sure the customer experience is consistently developed together with stakeholders. Incorporating sustainability factors has become a key success factor for companies through globalisation, market saturation and commonization.

In the last 20 years sustainability has become a megatrend and according to Lubin and Esty (2010) environmental issues have steadily trespassed on companies' capability to

create customer value. Companies can no longer ignore sustainable development as central on surviving competition long-term (Lubin & Esty 2010) and more companies understand that CSR help companies enhance its brand value and customer loyalty, achieve meeting investor expectations, differentiate the organization from its competitors, manage cost savings, can increase market share, motivate staff and innovate power (Cramer 2006, 13-14; Wilhelm 2014, 10).

Below in Figure 1 the numerous market forces around sustainability are pictured, as there is a strong business case as well as regulations that can lead to all these benefits for both the company and its customers (Wilhelm 2014, 10). In the still on-going pandemic world, CSR can be considered both a buzzword of the year 2021 and an action point for our society to wake up to work together to slow down the rapidly developing and dangerous climate change.



Figure 1. Market forces around sustainability (adapted from Wilhelm, 2014)

Like many other companies of today, at the end of 2020 VR Group named sustainable development at the centre of its strategy. Public transport and railway logistics are seen as a more sustainable way of transport comparing to other more polluting ones such as air transfer, private vehicles or ships which already make VR Group stand out from other transport options. Of course, a good starting point does not offer salvation, and thus VR Group also insists on making constant progress towards gathering understanding on development and learning to put more efforts into companywide sustainable development in all its fronts: safety, customer centricity, employee experience, environmental responsibility, and social responsibility.

50 years ago, Milton Friedman, a Nobel winning economist declared that the only social responsibility of business is to increase value for shareholders. Investments towards social and environmental do not belittle the business value of the company but in fact studies have shown that there isn't a need for a trade-off but an understanding that sustainable investments are better for the long term (Wilhelm 2014, 12-13). Also, as the high we have reached with overconsuming thanks to industrial revolution in 2022 the world is different and us humans should be able to evolve and re-estimate our needs and fix what we have caused. The last 50 years and growth in material well-being has cost us our planet and equality. In 2019 181 CEO's from leading U.S companies signatored a declaration which stated "*Each of our stakeholders is essential. We commit to deliver value to all of them, for the future success of our companies, our communities and our country.*" (Gartenberg & Serafeim 2019). The declaration shows that the time has come to understand that in order to act we must stand together and that to reach the road of profit, we must follow the road of purpose.

1.2 Expected outcomes

This development-oriented thesis is commissioned by VR Group's division VR Passenger Services and the scope of the thesis is about the development, release, and audience feedback analysis of a CO²-calculator for the company's digital channels. The commissioner also expects the thesis to deliver further ideas on how to combine planning the content of their CSR actions and customer engagement more strategically for the future.

VR believes that adding a CO²-calculator suits their brand and image as a company and is excited to hear what kinds of reactions the calculator springs in their customers and how it could be developed even further. VR does not necessarily see any direct monetary business benefits out of the release of the calculator however the company strongly believes that CSR development is an important value they wish to proceed on developing together with customers to align their customer centricity goals. What VR is confident in is that this particular customer engagement related implementation will open even more doors in creating further dialogue with their customers about joint cooperation related to CSR.

As VR Groups vision through strategy is to emphasize customer orientation, growth and responsibility, VR Group is especially interested on how audience engagement can support the CSR strategy and the aim of this thesis is to gather also other ideas on how to develop VR's Passenger traffic business to a more sustainable direction together with the customers for a best possible outcome. From the stakeholder understanding the project gathers for VR Group can the material be also used for creating an understandable action plan for passenger customer targeted CSR visibility.

I was interested in the subject because it's been quite clear that before we know how important customers see CSR and which parts of it they especially value personally and as VR customers, VR Group does not really recognize which development idea could be most impactful for the customer experience. In my work I use lean methods and thinking and one of the key objects of lean processes is that the value is defined by the customer.

From the thesis writer point of view, I see research as a welcomed challenge as the area of developing company CSR strategy and customer engagement is an interest of mine both professionally and personally. My expectations are that CSR is more interesting to our customers than it was a few years ago and as VR is already seen as a greener travel choice. However, I do not see CSR as a major trend yet nor I believe it effects the choices of most of VR's customers when choosing who they do business with. Afterall VR represents a very common need of everyday transport and as the customer base is wide, the majority of customers will choose VR because they don't necessarily have any other options. For the future I am confident that for any modern company, focusing on a more transparent CSR work will open the interest of many more customers in the future. Especially during the 2020s the matters around sustainable living will become even more

pressing to solve together as businesses and as consumers and these kinds of open ecosystems where we focus on solving issues together will replace the old fashioned “business and its customer”-type of one way relationship of how businesses have been developed before.

1.3 Research questions

The purpose of the thesis is to validate whether VR’s visible CSR action point affects their audience interest towards VR through their digital channels. The research is done with using methods that support one another; firstly, confirming that CO²-calculator is seen as a valid idea through a larger customer survey about corporate sustainability, secondly interviewing an expert on the subject matter of what are the ingredients to a clearly stimulating calculator for engaging customers and lastly developing a CO²-calculator in VR’s mobile application and testing interest towards it within VR’s customer database in two phases; first a focus group interview from where we gather thoughts about the prototype before development starts and then after the development has been finalized an open release in public Appstore’s run by tech giants Google and Apple. The research is done via user-centric design methods to help emphasize the joint cooperation that a research project as this requires in order to be analysed properly. The hypothesis for the research question is that VR customers are interested in their own data and environmental impact and the research will focus on finding whether the hypothesis is correct or not.

- **Main research question:** What is VR’s audiences’ response and interest level when incorporating personalized data related to sustainability in the form of a CO²-calculator in VR’s digital channels?

To help establish an answer to the main research question the sub-questions are:

- What factors do VR customers consider most important about CO²-calculators?
- What are the different feasible approaches to visualize CO²-calculator through user-centric design in VR’s digital channels?
- Does visibility of customers carbon footprint impact audience interest towards VR in its social media?

If the initial development seems lucrative by results, the research will also address the sub question of further development:

- What post MVP development items should VR consider after the initial launch of their CO²-calculator to further develop and measure in the future?

1.4 Significance of the study

The significance of the study can be examined from four viewpoints: the impact of the study for the commissioner's benefit, the significance to other organizations who look for a link in building a CSR plan that enables them to cooperate better with stakeholders, consumers who wish to understand cooperation with businesses better to achieve greater good, and for the thesis writer and her school.

For the commissioner the study is significant as it regards their customers and current as VR has chosen CSR development as their centric strategic goal in all its operations and company's purpose. Thus, the company it needs to better understand its current state and recognize feasible options on making CSR more visible and central in the eyes of their customers in order to create competitive market advantage in relation to its efforts through customer engagement.

From practical perspective, as customer centricity is one of VR's promises for its sustainability goals this research will help the company to understand the customer needs in the field of CSR better and thus understand the relation of sustainability and customer engagement better. From theoretical perspective, the study will aid VR on how to augmenting implementing more relevant data and theory to back up their CSR communication and development.

From the significance of the study outside VR the study can potentially help other organizations to understand the link between customer engagement and CSR better, thus motivating companies towards creating a more transparent and motivational communication model for corporate social responsibility.

For consumers and individuals, as data has been called the new oil, it should be reminded that no longer than five years ago we rarely saw or felt any consequences of our individual actions caused by pollution and consumerism per datapoint. Today we have the possibility to understand and see our actions a lot better and can be motivated by this newfound transparency to change our actions and show example to others.

The personal significance for the thesis writer is to learn new ways to develop together with customers even during a time where physical contacts with customers are limited.

The study has enabled even a digital native like I to plan sessions that we have previously held face to face such as focus groups to transfer to online environments and think of ways how to help people from different backgrounds to flourish in those and get their opinions heard and analysed.

1.5 Structure of the research

This thesis is divided into six different chapters. The introduction chapter gives the reader a brief introduction on what the thesis study consists of and explains the subject matter of importance and the research objective, introduces the research question and the sub-questions which support it and estimates the significance if the study. The chapter is a pathway to explain why this development project was important to carry out for all the stakeholders involved.

The second chapter gives an overview to VR Group and its renewed strategy then focuses on VR's Passenger Service Division who act as a commissioner for the study. In the chapter the focus is on VR's sustainability promise regarding customer centricity and thus the chapter investigates different angles relating to it as well as focuses on explaining VR's brand, image and digital channel development in more detail to further explain the reader the ways in which VR works together with their customers.

The third chapter introduces the reader to the theoretical framework and different viewpoints related to CSR, Customer engagement and digital service design are discussed. The theoretical framework addresses diverse literature and prior publications related to the chosen topic.

The fourth chapter explains the research methodology of the conducted research introducing in more detail the approach, research design, data collection process, analyses expected results, explains the studies reliability and validity and ethics and limitations.

The fifth chapter showcases the empirical findings of the research from the survey, the focus group and the results by the planned customer engagement test in VR Matkalla-application. The data collected during the research process is analysed and explained in detail. The fifth chapter also answers the research questions of the thesis study.

In the sixth and final chapter the thesis will explain the conclusions and recommendation based on the data and gathered theoretical framework from the study, estimates the students own learning during the thesis and provides conclusions and ideas for the future of the researched topic.

2 VR Group

In this chapter the commissioner for the research is introduced. In 2020, VR Group as an organization has decided to officially state that sustainability is at its strategic core. The commissioner for the work VR's passenger division and their work within their brand and digital channels is especially introduced in more detail.

2.1 VR Group

VR Group, founded in 1862 is a Finnish entirely state-owned company which employs over 6,000 professionals operating in the field of travel, logistics and maintenance. Groups annual net sales are approximately one billion euros (VR Group a 2021).

In the end of year 2020 VR updated its corporate strategy and decided to lift CSR into a centric role, making it the key part of the group's strategy. In Figure 2 below the updated strategy can be seen with the mission statement of aiming corporate responsibility towards promises in safety, customer centricity, employee experience, environmental responsibility, and social responsibility.

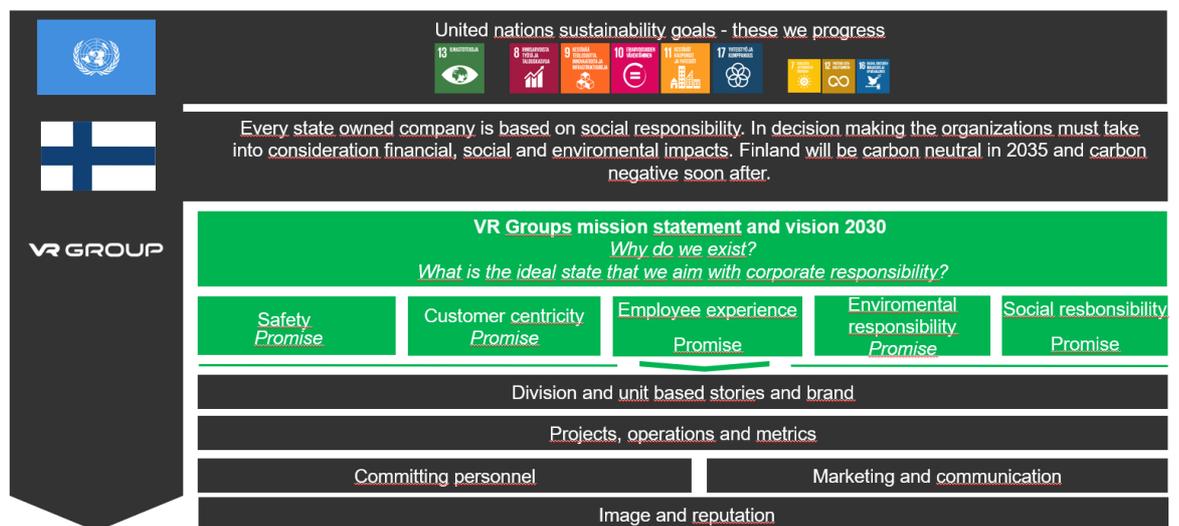


Figure 2: VR's corporate responsibility viewpoint stems from the United Nations and Finnish governments sustainability goals (VR Group 2020)

VR Groups sees this choice as a natural progression on its path, as rail transport produces less emissions and consume lower energy amounts than other modes of

transport and VR Group has already used renewable energy in traffic for a long time and extensive extent. Finland's government programme states that all state-owned companies must base their operations on CSR and VR Group promises to take financial, social, and environmental impacts of its operations into account in decision-making (VR Group b 2021).

VR could also positively affect Finland by creating more ecosystems for lower emission customer journeys and in 2020 Finnwatch, a Finnish non-governmental organization that researches businesses global impact publicly stated that Finnair should jointly with VR develop options for travellers to encourage them to on board trains instead of inland flights of which VR 2021 appointed 2021 CEO Lauri Sipponen commented in the fall of 2021 and stated the company is looking into options to support better customer experience with flight&train-journeys (Finnwatch 2020; Tanskanen 2021).

2.1.1 A look towards the railway and transport as an industry

In railway industry apart from sustainability the main impact of digitalisation is on the business operation model. Technologies such as artificial intelligence, big data and cloud computing, connectivity and autonomous driving influence the industry. Technologies are creating a new environment in which rail operators will need to be more agile, to act more rapidly and to change continuously to succeed in their mission. Distributors are the changing pricing and cost structures and opening of playing fields to hypercompetitive newcomers and new service models such as door to door services. (Thalesgroup 2019; Reszewski, Molenaar & Ulrich 2021)

Technology and sustainability both play equally big part on the change of the traditional industry as technology offers the industry more ways to supervise that the companies are reaching their sustainable efforts and help create new ways to be more sufficient in its actions. For passenger commuting, railways in Finland are the most sustainable way to move from all other transport options.

However, the whole transport sector is quite hard to compare to one another as planes, busses, automobiles and railways have their own sets of rules and characteristics on transporting passengers from A to B. Especially in sparsely populated Finland most of these offered services are heavily location based and for example the travel times vary a lot depending on the origin and the destination of the travel.

2.2 VR Groups sustainability goals for 2021-2025

VR as a company has committed to achieving carbon neutral production by 2035. VR's sustainability goal base was approved by the boards in late 2020. These goals are set up linked to the United Nations Sustainable goals and the most central are linked to environmental action points and sustainable cities and communities.

VR Group has chosen six most central goals from the United Nations Sustainable Development Goals which are:

- 13. Climate actions - Take urgent actions to combat climate change and its impacts.
- 8. Decent work and economic growth - Promote sustained, inclusive, and sustainable economic growth, full and productive employment and work for all.
- 9. Industry, innovation and infrastructure - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
- 10. Reduced inequalities – Reduce inequality within and among countries.
- 11. Sustainable cities and communities – Make cities and human settlements inclusive, safe, resilient, and sustainable.
- 17. Partnership for the goals – Strengthen the means of implementation and revitalize the global partnership for sustainable development. (United Nations 2021)

To support these VR Group is also dedicated to support three sub-goals:

- 7. Affordable and clean energy. Ensure access to affordable, reliable, sustainable and modern energy for all.
- 12. Responsible consumption and production. Ensure sustainable consumption and production patterns.
- 16. Peace, justice and strong institutions. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels. (United Nations 2021)

2.3 VR Groups Passenger Services Division

VR Groups 's biggest division by turnover, passenger services (VR) take care of passengers on the tracks and offer public transport services in long-distance and commuter traffic with trains and coaches (VR Group d 2021). Before covid-19 disrupted the economy, in the year 2019 the company transported over 14M passengers. Restaurant services AVECRA complete these services on trains and in stations and Pohjolan Liikenne handles coach services to customers in the West Uusimaa area.

On a daily basis VR's operates over 250 long-distance trains and over 1,000 commuter train services. (VR Group e 2021). In this thesis we focus on the passengers who travel long distance and commuter trains using AVECRA services and purchase their tickets using

VR-channels, which means leaving out Pohjolan Liikenne as it has its own distribution channels and its own customer register. In the Finnish railways, VR can be seen as a monopoly for customer traffic. Although competition for the railways was opened, VR is currently the only public operator for passenger trains.

Promoting sustainability as a customer choice is at VR's core as a business quite naturally, as its business environment works in both public transport and its energy consumption is the lowest of other transport options. In VR Groups strategies mission and vision statement of "*Getting there together for a better world*" promises Customer orientation as one of the five corner stones (VR Group c 2021). This statement promotes a brand and image of VR suitable for those consumers who wish to make sustainable choices in their daily life. VR's passenger service strategy is focused on customer experience, business growth, and cost efficiency.

2.4 VR's targets on customer experience, brand & image

VR creates interest around Finland as one of the biggest consumer brands that everyone has an opinion of. VR like many other companies is focusing on their customer experience. VR states that improving customer experience is a main object and that they aim to offer easy and effortless journey and travel times have kept getting faster. VR (VR Group f 2021, 19-21) states that they aim to be the customers first choice and in 2020 VR's Net Promoter Score was higher than the year before especially for their rise of efforts in safety, cleanliness, and digital development. Overall development items were mainly targeted at train punctuality and traffic disturbance communications and as well as health related safety protocols.

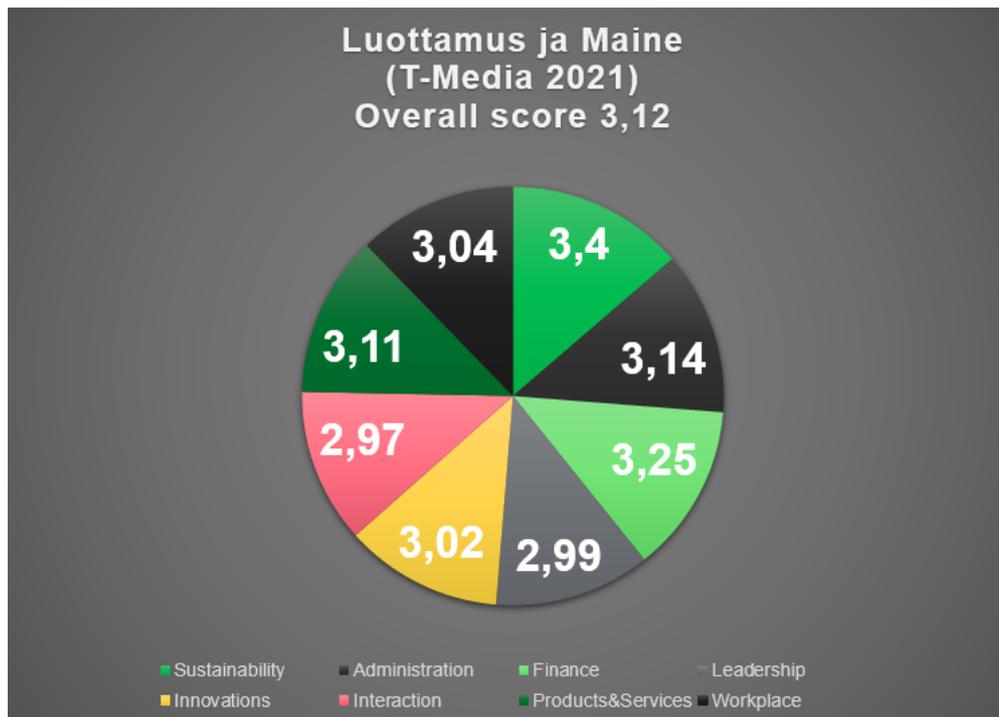


Figure 3: Luottamus & Maine-research by T-media (VR Group 2021)

With a known traditional and strongly known company that divides opinions amongst the nation, developing brand and image towards a more modern look does take time. Since 2017 VR has renewed its brand and image for a more modern and customer centric style that emphasizes sustainability. From late 2021 in their brand position VR wants to be referred as the customers “Friend”, meaning a helpful companion that is more transparent than before. In the fall of 2021 through T-Medias Trust and Image-research VR reached its highest all-around result of 3,28 (2019 3,22) with sustainability (3,59) being ranked as the highest and the most centric value of VR by the Finnish citizens (VR Group g 2021). In 2021 results seen in Figure 3 above there was a slight drop in overall score of 3,12 and Sustainability as 3,40. VR sees the explanation for the drop as natural reaction to companies’ adjustment process because of the pandemic, which resulted in co-operation negotiations and lay-offs. The T-Media research inquires how the companies’ actions have been seen during the covid-19 pandemic and if the trust has strengthened amongst consumers. VR has increased safety measures and provided customers possibilities for a more safe and private travelling while travelling and booking online, such as adding and intensifying on board cleaning, adding more shifts and customers being able to book an empty seat next to them or purchase a whole cabin to their own travel party. VR also made it mandatory for all passengers to wear a mask when boarded on the train in the

spring of 2020 and only changed it to a recommendation in October 2021. All VR employees still wear a mask during their shifts onboard trains.

VR's brand is already seen sustainable by the consumers, and they claim to prefer VR over other transport options based on this assumption. In 2021 VR, for the third time in row also scored a sixth place in Sustainable Brand Index and was number one in the travelling industry category. The ranking is based by survey in which consumers who are familiar with the brand assess the company's sustainability efforts. Ahead of VR in the total Index are Valio, Elovena, Prisma, Kotimaista brand and S-Market – all who can be seen pioneering the field of sustainable business development in Finland by taking visible stands towards creating more sustainable choices for their stakeholders.

The travelling and transport industry future scenarios remain hard to predict because of never ending covid-19, however the studies show sustainability plays a big part in decision making for consumers. Reszewski, Molenaar & Ulrich (2021) analyze from a consumer survey about the post-pandemic mobility habits from 2021 that after the pandemic consumers are finding ways to travel less and wish to adopt more sustainable means of transport. Mobility as a service which includes ridesharing and carpooling will continue to appeal to new customer demands and travelling for work or business meetings will likely decline. In Finland, there is trust in developing faster track options to lure more consumers and even if work life changed to a more of a hybrid model, there is belief that if faster transport options exist, they would be valuable as people value their time more and telecommuting does not remove a person's wish to move or use services of another place (Wallenius 2021).

2.5 VR's digital development in its customer facing channels

VR is one of the most visible companies for consumers in Finland because of their position as the only company providing transport services in the railways. VR has a strong presence online and approximately 90% of purchases are done digitally. About 1,5M individual consumer and business customers use the main site monthly and VR has over +1M app downloads making VR's one of the biggest companies in Finland related to consumer presence. One of the strategic targets of the division is to grow the number of registered customers and offer them more personalized services for customer loyalty. Therefore, for example the mobile application VR Matkalla cannot be used without registering a user account and some products require a login for purchase and use.

VR started its current e-commerce channels renewal in 2019 and has made the development together with customers, using agile and lean development methods in leading the new development. For example, as VR obligation is to offer services for everyone equally, digitally VR has taken accessibility development as a part of their development teams everyday work and also cooperate with companies that help businesses to understand and train their employees to the demands of both digital and physical accessibility.

In VR's design aesthetic from physical services throughout digital experience the focus is on equality and responsibly serving diverse groups of needs and people. Although the idea of purchasing a single train ticket for an adult might sound easy, in the scope of understanding all corner cases such of adding an assistant or a wheelchair passenger, being compliant in digital accessibility, understanding which kind of information to add if there is change in departure or a two legged trip where the customer has to switch trains adds complexity which is not easy to design and explain for the digital world nor plan for the physical world interactions.

In the future, VR also plans to renew its customer loyalty programme and aims to personalize discounts and target offers more personally to gain growth and loyalty among their own channel's digital customers. VR believes that in order to stay competitive for the future of their business they must emphasize their actions regarding customer loyalty and tactics to preserve their client base.

2.6 VR's current state of visibility in CSR activities to stakeholders

VR's visible channels for stakeholder related CSR activities interaction are the Groups website, the vr.fi-website, the VR Matkalla mobile application, their own social media channels in Facebook, Instagram, Twitter, TikTok and LinkedIn, their marketing automation platform Bloomreach that enables them on targeting personalised e-mails or push messages in their mobile app and of course the more traditional press releases. For consumers VR also does live promotions and events in stations, trains, as customer roadshows and has a dedicated pilot group for its digital channel development as an active Facebook group with +500 members. As VR has quite a wide customer database, they have the possibility to interact and do research through surveys even to larger groups of people.

Like most companies, VR publishes a yearly sustainability report every April which includes introduction to the company's sustainability values and explains in more detail all actions related to their chosen promise categories groupwide. The report also includes GRI-content index which is a framework helping companies explain CSR reporting in a clear and comparable manner.

VR has earned a Sustainable Travel Finland- seal from Business Finland, which has been awarded to 129 companies in Finland for their actions regarding more sustainable travel. VR has compensated all its fuel, electric and diesel production greenhouse gas emissions. For customers every trip is either carbon neutral or compensated. VR's trains operate 95% with hydroelectric and are already carbon neutral, and the non-emission free 5% of journeys which are operated in rail routes without electricity the emissions have been compensated from 2019 by investing in two Gold Standard-certificated projects, one of which is a forest project in Columbia and the other a solar power building plant project in India. (VR Group h 2021)

In Finland VR supports societal goals by philanthropy, activism and charities by supporting communal goals through volunteering or ethically oriented practices. VR does these activities mainly by campaigns. In the past VR has cooperated with Aseman lapset (Children of the station) which supports safe growth of children and youth, enable their well-being, and inhibit social exclusion and supports them financially with yearly donation. In 2021 through its social media campaigns VR took part in #WeThe15 movements that supports inclusivity and made a public stand towards supporting covid-vaccinations by placing plasters to their iconic brand ambassadors "Kivimiehet" in central railway station. To support VR's actions towards a more sustainable and equal workplace inside and out, starting from 2022, VR has employed Panu Mäenpää, a known Finnish human rights activist as Chief Communications Officer (CCO). VR pays almost all its taxes and other statutory payment by law to Finland, besides a small part to Russia for their jointly owned company in Russia for Finnish-Russian railway traffic owned 50% by VR and 50% by RZD a national Russian railway operator. In 2020 1% of VR's waste went to wasteland and the recycling rate of material was 65% and by 2025 their goal is to increase it to 80% (VR Group f 2021).

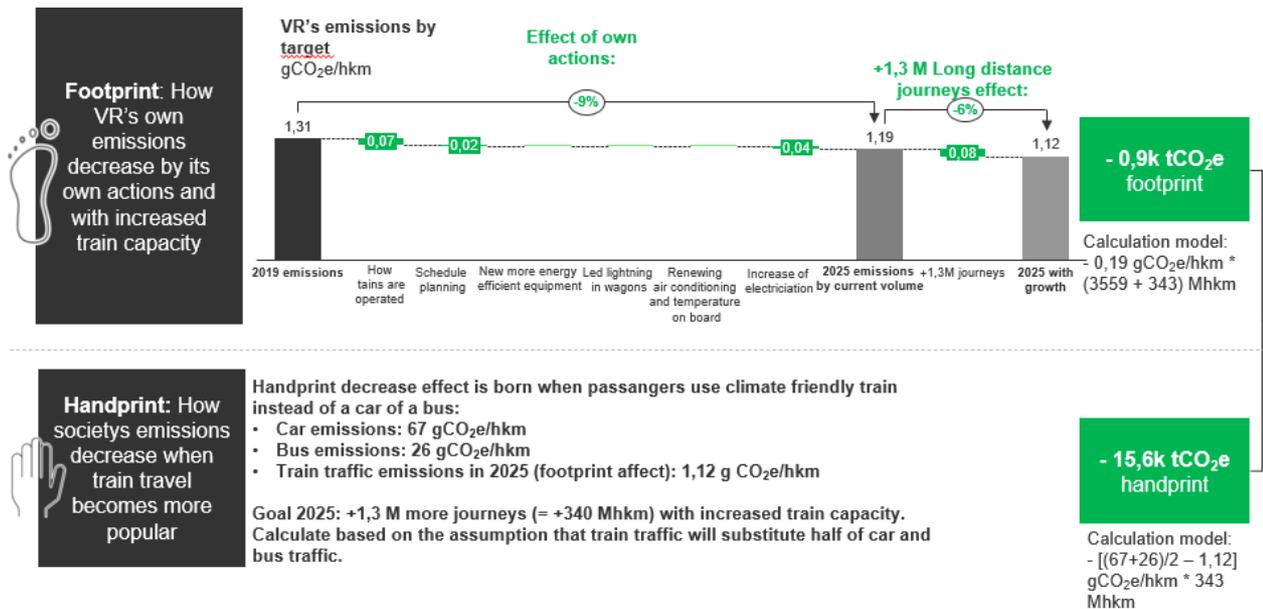


Figure 4: Environmental footprint and handprint strategy of VR (adapted from VR Group 2021)

In Figure 4 VR's strategy for environmental footprint and handprint until 2025 can be seen. In VR's strategy of 1,3M more journeys would decrease Finland's emissions by replacing other means of transport. In its customer related front VR will continue to communicate the importance of emission handprint which explains how society's emissions descent when train travel becomes more popular, and that VR is the "greenest option" when it comes to transport when it is compared to a car or a bus. This message is supported by VR's environmental goals that tell the customer that VR does not only rely on growth but also makes actionable plans related to its environmental goals. The decrease of footprint is small compared to handprint however it must be understood that via making actions regarding footprint the energy efficiency goes up and costs go lower.

3 Theoretical framework

In this chapter the theoretical framework relating the field of study is clarified for CSR, the visibility technology has brought to sustainability follow-up, the concept of customer engagement and examines CO²-calculations as a way of communicating sustainability related data more clearly. Theoretical data chapter also offers guidance from known Finnish CO²-calculator development project from Sitra and offers the comparison data of different CO²-calculators online. Please note that customer engagement is not the focus for the studies tests, but it provides detailed information on how audience opinions and perceptions bring value to organizations of today.

3.1 Corporate sustainability and corporate social responsibility

CSR also known as listed by Forbes (Epstein-Reeves, 2011) as sustainability, corporate responsibility (CR), sustainable development, corporate accountability, creating shared value (CSV), citizenship and social responsibility require companies to look beyond their economic performances and consider the impact of their actions on the society and environment which they operate on. However, as previous CSR studies underline, when companies ensure that the associated CSR activities are fully integrated into the company's strategic processes can environmental and social performance be translated into long-term shareholder value. Sustainability management aims to integrate economic, environmental, and social aspects of business management and CSR aims to integrate all of these components to business management in leading a long-term perspective to sustainable operations (Gutterman 2021, 7; Kocollari 2018).

Stakeholder theory is based on a management literature concept that frees the restriction looking at purely shareholders or owners as the value receivers but also inviting customers, employees, suppliers and communities in having a stake on what the company should offer to its environment. The company does not just offer to serve their owners but all society. (Kocollari 2018) As corporations have large amount of power on how the world works and thus responsibility over rethinking how their actions are lead in the lens of sustainability. Therefore, especially corporations should take the responsibility on leading the work for a more sustainable world. Consumers their selves can only do so much on their own and therefore corporations must be part of executing and educating consumers about the change for a more sustainable world.

3.1.1 Main categories of CSR

CSR has traditionally been divided into four different categories shown in Figure 5 as a traditional CSR dimensions pyramid: economic, environmental, ethical and philanthropic responsibility. The pyramid was introduced in 1991 by Archie Carroll and in below figure the pyramid has been modernized, as the original included legal responsibilities instead of environmental. Economical refers to owners and shareholders to do good financial decisions instead of just plain maximizing profits. Environmental and ethical responsibility relate to positive values concerning stakeholders' interests and depending on the business can consist of many environmental or ethical forms from energy savings to setting a higher minimum wage. Philanthropy refers to wider societal entities such as providing for the community or country for public welfare such as giving to non-profits. In the company's operations all these dimensions can be built on shared value. (Kocollari 2018)



Figure 5. Dimensions of CSR pyramid (adapted from Carroll 1991)

3.1.2 CSR management and added visibility through technology

In addition to stakeholder responsibilities, managing sustainable and economic development, technology plays a big part. Technology design has incorporated

sustainable practices for product to leverage materials and reduce product lifecycle impact environmentally. Effective sustainable technology means facilitating improvements to product appearance, performance, quality, functional and ecological, social, and economic value of the product and digital sustainability should also be considered from the consumers point of view as in technological accessibility; that all people including those with disabilities can use and access the technology (Gutterman 2021, 143; Barrel, 2020).

At best technology can help visualize and educate different CSR metrics of the organization closer to them and their stakeholders. AI, sensors, data collection and sparring of data can help make visible an understandable collection of company's operational view of its CSR actions and inform company stakeholders towards a more complete and timelier look at where the company's efforts are thriving in and where it could improve.

However, the organizations must understand that mere reporting does not offer progress, it's about sincere actions too. CSR measurements are often nonstandard and imprecise and just focusing on reporting may lead to distraction of the end goal. In over twenty years of sustainability reporting companies still link growth as their foremost target and that is what is destroying the noble idea of sustainability. Setting a baseline helps the company understand its origins, manage the performance toward better over time and close the gap on where you start and where you want to go. A good way to understand the progress in more detail is to analyse the change along with concurrent gap analyses and sustainability SWOT's. (Pucker 2021; Wilhelm 2014, 75 & 98)

Technology does not just offer insights to CSR and provide data to sustainability reports, it also causes a rapidly increasing number of emissions around our planet. Streaming Netflix on VR trains disconnects Wi-Fi for other users and mobile application development that only supports the 5+ years or never phone models force the consumers to buy a new phone every few years to stay online and up to date. Calculating technology emissions starts from the production of technology and these companies should in the future be more aware on how their actions affect consumers and how they force them to behave. For a company using these as services or devices, they should be able to also follow-up on the undirect emissions their own suppliers make as it's also a part of the whole ecosystem the business is in.

3.1.3 Referencing most sustainable companies

In the recent 20 years also sustainability measures and metrics have been developed and there are international publications that do follow ups on most sustainable companies. In year 2021, five Finnish companies Kesko, Metso Outotec, Neste, Nordea and UPM-Kymmene were included in the Global 100 most sustainable public traded companies list by Corporate Knights, a media, research, and financial information products company based in Canada which focuses on promoting economic system where prices fully include CSR related costs and where the companies understand the measures of their actions (Corporate Knights a 2021). The assessment was carried out on 8,080 companies and key aspects were each companies' actions on reducing emissions and mitigating climate change (Kesko 2021).

Although sustainability is measured and competed on more than ever, the impact of its efforts is not seen in the big picture. From the 2021 Global 100 a majority of 46 companies were in Europe or UK based which implies that Europe can be considered as a front runner in managing sustainability in business. Globally governments have taken more commitments to sustainable projects and companies and municipalities have signed on to net-zero with doubling the amount of commitment from year 2019 which stems also from rapidly growing concern from voters, consumers, and climate change activists such as Greta Thunberg as well as from the public recognition that climate change is causing more wildfires, heat waves and disasters than ever before. Sustainability has never been this public. (Corporate Knights b 2021)

Instead of letting governments manage sustainability on their own, businesses can help them to reach the uniting goals even faster with industry specific knowledge. Unilever and Patagonia are considered both to be examples of companies that are looked sustainable both from customer engagement perspective and from corporate view – they aim to impact wider to our society with their efforts on sustainable business. For example, Unilever has offered EU policymakers assistance proactively as it has deep knowledge on climate change, food security and empowerment of women in the workplace and Patagonia on the (Polman & Winston 2021). Patagonia on the other hand bases its whole business plan to implement solutions to the environmental crisis for saving the planet. These kinds of forerunners can help gap the bridge between traditional relationships with governments and businesses and show example to others with their mission and impact in CSR efforts.

What businesses should be asking today is “*Is the world a better place because we are in it?*”. These forerunner companies in sustainability think that traditional CSR models are inadequate for our times and that we should be rethinking the concept of business and how they can change the world for the better. What are the sustainable forerunner companies now aiming for? As no company is yet net positive the focus should be on stakeholders and taking full ownership on all the impact the company is making. Building ecosystems with partnerships and working with critics for rethinking the way we approach the forms of advocacy such as lobbying. (Polman & Winston 2021) Unilever or Patagonia are not alone either, as the 500 CEO’s of world’s largest companies mentioned in the introduction of the thesis are shifting their focus and slowly the work has begun. Maybe globally striving on being net positive could be the impact we have yet to be shown. What makes the strive easier is to have purpose to guide as a long-term focus on the wanted change.

3.2 Customer Engagement

Customer engagement (CE) is a process in which the organization nurtures their relationships with their customers in multiple dimensions and it inspires the customers to interact and willingly take part in the experiences the organization creates for the customers. Customer engagement and business profitability have a proven correlation and thus any organization should not forget in investing on customer engagement. (Fertik 2020; Kumar 2018, 300).

As markets today have become even more competitive, customer engagement is foremost a driver for revenue that should not be overlooked. Companies should build for change as there are going to be a lot of companies that will not survive because the new generation of customers aren’t fond of doing business with them. (Fertik 2020; Trefler 2014, 2). This generational change has catapulted because online the customers can voice their opinion of any organization using a variety of channels; the word of mouth has never travelled this fast. Also, because of globalization and digitalization it has been never this easy to change who you do your business with if the business is not meeting the expectations the customers had for you.

Starting points with customer engagement are quite simply stated however they do take time, effort and coherent input from the organization towards its clients. Organizations should analyse the customer journey, listen and reply to their customers feedback, offer

seamless omnichannel experiences in each of their channels and paying close attention to their reputation score among customers. Organizations should not force engagement, after all the interactions should be always offered by the company and chosen by the customer. The high-definition customer experience is the critical factor in maintaining and thriving as a business. The company can be only as good as the engagement or interaction that they offer. (Fertik 2020; Trefler 2014, 152)

In purpose driven communication as well as in all marketing and communication in order to understand the company's status among its stakeholders and reach its goals in customer engagement, the efforts should be always measurable. There are many analytic tools that can help businesses to understand how aware the audience is, how much improvement happens over time with opinions from the organizations customer base, which kind of customers prefer what and so on. (O'Brien & Gallagher 2021, 193-194)

3.2.1 Customer engagement and CSR

CSR is one of the essential drivers of today's customer engagement because it represents trust. Trust is the basis of maintaining an active, long-term and positive relationship with customers. Studies have shown CE is essentially driven with customer-brand identification and customer satisfaction which are highly influenced by the companies CSR actions. This is because CSR in the customers eyes is seen as a social and environmental responsibility of the company. Essentially CSR management can build two types of trust towards the customer, an immediate impact on the customers with improved goods and services and indirect impact on society that enhances the greater good of all. (Agyei, Sun, Kofi Penney, Abrokwah & Ofori-Boafo 2021; Badenness-Rocha, Ruiz-Mafé & Bigné 2018)

As relationship fostering strategies, it's shown that CSR and CE have a lot in common. They can be both seen as the production of willingness to participate in greater good, whether the good is individual or communal. They also both reflect on shared values and mutual understanding of what's going on and what kind of topics can be addressed transparently. However, it should be kept in mind that despite of these seemingly soft values described here they as key factors help to manage a successful business and it means that when they are working together, the organization is doing better socially and financially.

Companies should also look to future-proofing their organization to keep the customers of tomorrow content of believing that they intend to make a difference instead of their own agendas. The next step of CSR and customer engagement is forming a path into customers expecting the companies they associate with to drive their companies more innovatively driving social change. CSI (corporate social innovation) different from traditional CSR in creating long-term focus holistically and strategically. As CSR has been sometimes thought to produce more short-term value through philanthropy related initiatives the concept of CSI leans on building social value into the company's core missions. (Golstein, 2021, 248-249)

3.2.2 CSR communication and consumer perspectives on corporate visibility

CSR communications focuses on CSR integration, interpretation, identity and image and communicating these issues to stakeholders can help build a general consensus and a sense of identity however as there is so much one organization could communicate about CSR, decisions need to be made what kind of information should be shared to educate and inform rather than confuse (Kocollari 2018; Gutterman 2021, 161). For example, if consumers are interested in origin of the products sold by the company, their communications should be able to provide transparent information about it. Many companies at least publish a yearly CSR and sustainability report to its stakeholders with investor-focused areas.

According to Kaskinen (2021) consumers would increasingly trust companies if they would more openly communicate about sustainability efforts. Consumers would like to see more openness in goals and what the company aims to even if they would not always reach those goals and openly outline areas where the performance has been less than stellar. Consumers wish more transparency and less green washing tactics which only help the companies brand and image and communications should be authentic, accurate and based on accountability and solid evidence to increase stakeholders' confidence (Kaskinen 2021; Gutterman, 2021 162; Wilhelm 2014, 247-248).

Being relatable is the key if you wish to be understood and data can create impactful storytelling. For some climate action in metric tons of CO² equivalents do not reach the understanding of most people. Therefore, familiar terms or offering different equations helps different people understand the metrics a lot better. For example, visually creating different categories such as energy use, business travels or waste and equating them to

lighting a house, trips travelled around the country or trash bags per person can help the person identify what's impactful for their own everyday life. Also, a few companies openly share their best practices and there should be a more open dialogue for sharing and thus encouraging towards actionable points in sustainability efforts which the customer or other businesses can take into use to improve the effectiveness of the company's sustainable program. Educating and sharing inspirational stories motivate people to work together towards a mutual goal in the way they see fit. (Wilhelm 2014, 248-254)

Today, many companies are stating that their goals will be reached in the year 2035 but more important is to tell what is happening now and what kind of actions are companies taking for a more sustainable future. Key sectors such as transportation, energy and food are all considered to be the businesses which have the most pressure in making a change. In the change big corporations must understand the help of an ecosystem and think how they could work with smaller start-ups work together for the sake of sustainability goals.

3.3 CO²-calculators as a visible CSR communication tool

An effective way to calculate the effect of our actions towards the planet is to calculate carbon dioxide emissions (CO²). The effect of greenhouse gas emissions on climate can be measured and compared using the carbon dioxide equivalent (CO²e), which demonstrates the greenhouse gases produced by humans, or the carbon footprint. It should be reminded that calculations always also vary because of a lot of moving parts such as in transport it will differ a lot pending on the source of electricity used, the type of train or a car and whether its new or now and which kind of fuel is used and how full has the transport vehicle been.

CO²-calculators bring awareness from business to consumers. One of the most common tools in recent years for companies to visualize their CSR activities towards their stakeholders are different CO²-calculators. The meaning of these different calculators is to bring awareness to consumers and companies about their emissions. According to Pucker (2021) the CO²-levels are still increasing despite the attention however Lettenmeier and Jalas (2019) explain that consumer efforts in climate change should not be belittled but encouraged as the main advantage of the calculators is to bring forth knowledge on modesty and target the role of consumption and explaining lower admissions basically just mean purchasing less.

A company should take on account all the necessary ways to make their CO²-calculations transparent via sustainable data input and user centric design as there are still some obscurities related to calculating emissions of carbon dioxide (CO²) and other greenhouse gasses (measured in CO² equivalents/CO²-eg). There are fortunately ways to understand if the quality of the calculation is transparent if there are inconsistencies with the calculation methodology, or a missing scope of a categories or lack of aggregation for further use. When creating the model, the company should be aware of calculating and fulfilling the necessary criteria, understanding data validity and source, and imputing recommended actions for the users as well as allowing the users understand what actions have already taken place. (Berger, 2020)

3.3.1 Expert interview with Sitra

In December 2021 Emma Hietaniemi, a leading specialist in charge of the project from Sitra was interviewed though a Teams call with a semi structured interview. The pre-planned interview questions can be found from Appendix 2.

Sitra released its lifestyle test CO²-calculator in January of 2018 to help individuals understand the impact of their actions to our environment. The idea for calculator originated after a team for “Sustainable everyday life” was established with the goal of activating Finnish citizens towards a more sustainable everyday life. They felt that although people were interested in caring about the planet, they individually did not necessarily have the necessary information available to understand the impact of their actions without visibility to recognize the size of their carbon footprint or have the availability of practical tips on how to reduce their own carbon footprint.

First the team started by planning the content for “100 smart actions” a list that gathers both small and bigger sustainable acts as an inspiration for citizens. Second, they understood that there should also be a view on how to reach individual action proposals and they decide to also include a calculation model which would target certain actions for the users. With the calculator, Sitra started their work by comparing the most popular carbon footprint calculators in Finland and globally. Nineteen calculators were looked in more detail through their content and objectives with special attention to user experience as Sitra felt that for the test to be successful it needed to make a true impact for the users to act besides just testing and acknowledging their footprint. There was a need for a tool to enable consumers to both easily calculate and understand their carbon footprint in their

own lifestyle. Last, Sitra also decided to offer comparison data for users to understand how other users who have taken the test are doing and they also offer data of the average Finns carbon footprint. The team consisted of wide range of experts from in house to outsourced calculation experts, media & PR agencies for look and feel and copywriting encouraging content and developers who executed the easy-to-use vision.

The target for the use of the test is that it should be easily executed, and thus Sitra does not ask for any detailed consumption rates for example for the users electricity bill but targets to raise both awareness and to encourage the user. The test is meant for both citizens that are first time users and for users that want to know more and are already dedicated to the cause.

The popularity of the test exceeded Sitras expectations. By year 2022 the test has been taken over 1,2M times and Sitra has been pleasantly surprised by the popularity of the test as it means that almost one quarter of Finnish citizens has taken it. Yearly, when the climate IPCC report from United Nations is published, Sitra sees a spike in the usage of the test. What has surprised Sitra is the lifecycle of the project as usually Sitra cooperates in projects with a lifecycle much shorter than this, and they are especially surprised that the test has spread outside environmentally dedicated groups to very wide range of different forums through the social media.

The feedback from users and the development of sustainable alternatives has changed the content a bit during its lifecycle, but the structure has remained the same. For example, green district heating is a new category in the living section and yearly Sitra updates or renews some parts of the calculation model or the list of “100 smart actions”.

Sitra stands by the findings that sustainability work should be first and foremost positive, encouraging and shared. The calculator started as an activation tool for citizens, but it has also spread for the use of other organizations. The calculator is also used by the government and schools as a learning material and the data is shared with many different organizations in business. The calculation model, code and the content are licensed with a Creative Commons BY 4.0 license that enables other organizations to use the calculation model and the tips for their own purposes too.

For the future Sitra has joined forces into bringing sustainability awareness as a joint European wide project. To help aim the gap between the future of climate awareness and

individual action and participation in sustainability topics Sitra has joined a European Commission project called “PSLifestyle” together with eight European countries which enables the engagement of four million EU citizens. The project will build a data-driven application with co-created and personalized sustainability plans which also includes possible everyday actions to choose from. This will help European citizens take their personalized steps towards a more long-term planned sustainable lifestyle. The project development started at the end of 2021 and will last until 2025 and like Sitra’s own current platform and data it will be an open platform meaning that anyone can freely use the data for their own purposes and participate more easily.

3.3.2 Comparisons between CO²-calculators

A benchmark comparison was made between different CO²-calculators found online. The CO²-calculators were picked because of their focus on equivalent business area in transport (Finnair) or by the fact VR Customers mentioned using them (Sitra, WWF) via VR’s CSR Survey of 2021. Also, a new service by Spark Sustainability called “Carbon Donut” was added because of its comprehensive new business model which offers its users more modern tools like gamification and partnership model for providing in depth information about emissions and keeping count on their action points effect on lowering carbon emissions. Benchmarking is considered a good method as it enables the organizations to learn from others and is suitable especially when used in development projects as it can lead to new insights and discoveries outside the business area of the developing organization (Ojasalo, Moilanen & Ritalahti 2014, 143).

The CO²-calculator comparison shown in Figure 6 below was made by assessing the different features of the chosen calculators. The comparison was made by dividing the calculator functionalities in different categories and lastly by giving an overall rating to the calculators by the scope of their functionalities in the different categories and overall service level of the calculator product. The chosen calculators represent very different usage points and are intended for different audiences however all share the mission of making the carbon footprint data more visible to the user, whether they are looking for business area specific emission count or visibility to understand a wider scope of users personal emissions and educate themselves into lowering their personal emission levels.

Calculator features	Sitra	Finnair	WWF	Spark Sustainability
Origin	Web page https://elamantapa esti.sitra.fi/test	Web page: https://www.finnair.com › emissions-calculator	Web page https://ilmastolasku ri.fi	Application "Carbon Donut"
Categories of emission types	4: living, transport & tourism, food & things and purchases	1: Transportation	4: energy and waste, travel, procurement, waste	7: heat, transport, food, electricity, flights, consumption, social
Content	Build as a test, after completing gathers personalised tips for the user marked with their environmental impact from small to large	Offers general tips for a more sustainable journey	Targeted for B2B (offices)	Act section offers guidance, challenges, possibilities to log personal actions
Usability	Survey easy to fill	Survey easy to fill	Survey timely to fill, no options but only possibility to add from zero	Survey easy to fill
Educational level	Insightful. Shares information of your own carbon footprint, the average who took the test and where average should be in 2030	Basic. Educational level purely focused on the business area of Finnair	Get educated by joining to the network, no free material	Active. Learn section offers possibility to complete lessons
Partners, incentives	Not shown, but as Sitra operates under Finnish Parliament its model is based on cooperation	-	Green office network that provides help	Possibility to earn deals for services from some partners in many industries
Calculation model	PDF which has gathered all the calculation criteria used with sources	Can be found with clearly marked sources	Can be found easily with sources	Not locatable from the app
Overall rating *****	3,5* educational, co-creational, personalized. Would be nice to follow your own efforts in your footprint via action points with given tips	2*, Very basic calculator for the business needs	3*, targeted for B2B	4* Gamified experience, logs the efforts

Figure 6. CO²-calculator comparison table

In the comparison table you can see that most of them were web pages. Only Spark Sustainability offers their calculator as a mobile application, and from Sitras interview it seems that for the upcoming "PSLifestyle" project the aim will also be a mobile application which enables quicker performance and easier data retrieval for the users stats. Each calculator had different emission categories, Sitra the clearest. Regarding content and its clarity, all performed quite well but ambition levels were clearly different and Sitra and Spark Sustainability both offered education and multiple ways to activate the user. Data wise, the input and output differed – Sitra had the clearest calculation model and usability wise spark sustainability collected the most detailed consumption numbers from the users. Overall, Spark Sustainability clearly differs from all services as a dedicated product with a business model dedicated on offering an impactful experience for the user to find insight and stay active on finding ways to cutting down emissions. Sitra on the other hand acts as a sort of trainer for everyone to get involved in creating a more sustainable future.

3.3.3 The future of emission calculations

As the society is demanding more throughout on calculating environmental disadvantages the companies and consumers produce, Jyväskylä University together with funding partners Sitra and SOK is piloting a project that aims on creating a calculation model for

the whole supply chain. Instead of just calculating emissions from the company itself but its whole value chain. The calculation model is difficult however partners involved see that in order to improve communication in sustainable matters it is the logical next step to at least try. As the pilot will base on a real company with a large business environment, if successful it could open the doors for companies to more easily set targets towards goals into being net positive. (Pelli 2022; Miettinen 2022)

The model also enables us to work together globally on creating more precise ways to calculate our actions effect on sustainability, as for the pilot project SOK has supply chains around the world. It seems that open platforms, data sharing and at least inside the EU we are doing now more to create much needed cooperation than there has ever been before.

4 Research methodology

This chapter introduces the research methodology and details the research roadmap design and roadmap. The chapter also introduces the methods chosen and used during the implementation and the development of the CO²-calculator and the way data collection was done in those phases, estimates the reliability and validity of the research, while considering the ethics and limitations of it. The methodology of this study refers to the way how the main research question and assisting sub-questions are answered through further investigation during the study.

4.1 Methodology and timeline of the research

The chosen research method for the study is constructive research. The characteristics (Ojasalo & al. 2014, 37) of constructed research consist of solving a problem with a concrete plan of action which in this case is developing a CO²-calculator in VR Matkalla application in order to investigate if it affects customer engagement. Action research would also be suitable for solving a concrete problem but in this research as the commissioner already strongly had the development of a carbon footprint calculator in mind, it better fits the needs of the work. Both of these methods can use similar types of processes but with constructive research the close interaction with the theory of the researched and developed subject is usual (Ojasalo & al. 2014, 38).

The Figure 7 below showcases the elements of constructive research that focuses on solving a problem concretely by producing a solution to chosen problem using practicality and during the process collection both theoretical knowledge and empirical findings from the findings of the research. According to Ojasalo & al. (2014, 65) the aim for constructive research is to find a justified solution to a practical problem which enables the business to have new information and in the commissioner's case that it exactly the needed scope. In VR's case the idea for a CO²-calculator has been discussed for quite a while, but there never was enough reasons or customer needs gathered around to supports its necessity among customers or business context. It has been seen as an extra effort and the research enables to gather wider input in order to test and validate the idea throughout.

Elements of Constructive Research



Figure 7. Elements from Constructive Research (adapted from Kasanen, Lukka and Siitonen 1993)

The research was done in with mixed methodology which integrates both quantitative and qualitative data collection for a wider perspective on the matter and allows to gather insights from both importance on corporate sustainability for VR customers as a whole and then by understanding and testing a restricted development item to be able to answer the main research question of “How VR’s customer engagement is affected by incorporating a CO²-calculator into VR Matkalla mobile application”.

During the research period the researcher collected theory from different academic and trusted business publications and gathered both qualitative and quantitative data during the research as sequential mixed methods research, meaning there is more than one phase of data collection and analysis done within the study. The research strategies combined survey, case study and action research which fits well to the mixed methodology research to provide more profound understanding to a complex phenomenon.

From Figure 8 below thesis research design and its later phases can be seen in more detail; from the development point of view the work will first conduct a survey to understand if the base hypothesis is valid and pursuing to develop a CO²-calculator is seen engaging by the customers, secondly a focus group together with the customers to define more precisely what could be beneficial for the user centricity of the calculator and lastly developing and releasing the calculator and analyzing if the data from the release suggests the calculator has effect on customer engagement. The development part of the

thesis is supported by introducing the commissioner company in more detail and adding suitable theoretical information about the researched topic.

Research roadmap

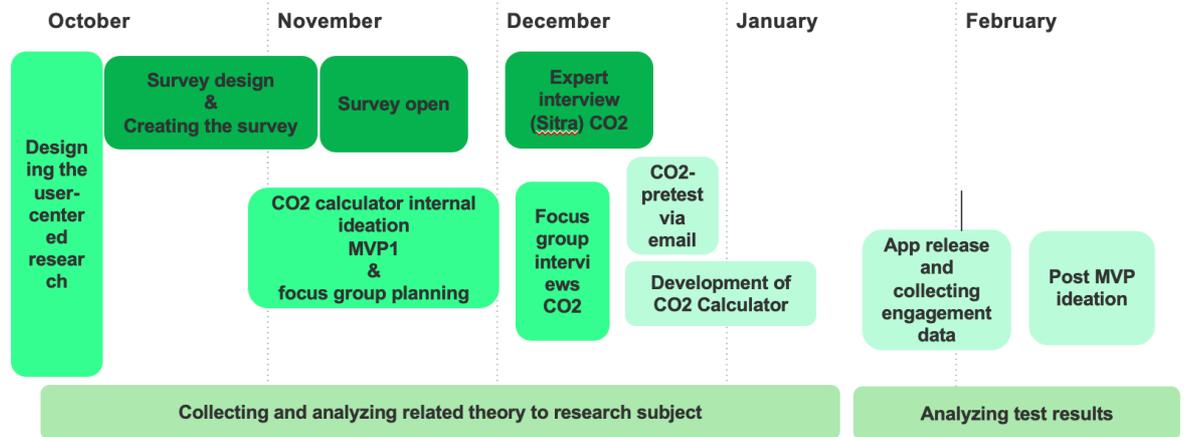


Figure 8. Research roadmap

The research period and data collection lasted from October 2021 until early March 2022. First, a survey was chosen as a method to gather wider understanding about CSR in the eyes of a VR customer. Comparing to a more generic survey conducted in 2019 the survey for 2021 was meant to be more relatable for the customer and the survey wanted to gather more concrete examples and be more individually centered.

The survey was meant to gather four different aspects together: First, understand how committed to CSR the customer is both as a private person and as a VR customer. Second, understand how customer views VR's CSR status and visibility today. Third, understand what kind of development ideas arise from the survey for VR to develop both its CSR visibility in its own channels and develop potential new business models related to more sustainable ecosystems. Fourth, there was also a need to understand how many customers would be interested to take part in VR focus groups or a customer panel related to development of VR's CSR activities.

From the survey we found understanding that the from many different CO²-calculators online, 50% of the respondents view the Sitra lifestyle test- CO²-calculator as a great example of a properly working and an engaging tool to use online. Thus, a semi structured

interview was held in December to gather understanding from the development of the 2019 released calculator and Sitra's development related to that.

For the development item in VR Matkalla application for a more visible CSR activity a development of CO²-calculator was chosen. First, VR internally drafted ideas by benchmarking and brainstorming around different CO²-calculators online and decided their focus for the data model would be to compare different transportation options to train travel. In December 2021 a focus group was held in order to provide more qualitative and in-depth insight of where VR customers feel the development of their CO²-calculator should target to and to offer insight on how important do, they view it as a tool for customer engagement.

From the focus group findings VR did some changes to the original development plans and the MVP (minimum viable product) version of the calculator development started at the end of December 2021. At last, in start of February of 2022 the first version of VR's CO²-calculator was released in order to test the customer engagement hypothesis which was created internally. The test provided results on a limited topic as a way of practicing CSR related use-centricity and its impact for VR's digital channels and customer activity.

Through the quarter one of 2022 the thesis research focused on gathering the post-MVP findings from the focus group where VR should focus in the latter development phases and analyzed test results to finalize the thesis research.

4.2 Scope and limitation of the research

The research focused on the customer centricity of VR Groups CSR activities in creating a CO²-calculator to follow up on its effect on customer engagement. As the scope of sustainability is quite large and complex, the customer engagement through CO²-calculator was chosen as visibility is one of VR's own promises regarding its sustainability goals within customer centricity and VR had already had some thought about incorporating the calculator in their digital channels.

The customers that were surveyed or interviewed were not chosen specifically to represent as many different backgrounds from data point perspective but were selected randomly from their given permission to do market research and both the survey and the focus group was conducted with only Finnish speaking residents.

As the focus groups were held online, VR was able to obtain attendees from all around Finland, with participants stemming from variety of ages with different professional backgrounds and from different areas of the country, from Uusimaa area to North Ostrobonia.

4.3 Research design

For the study, the design process for the research started in September 2021 by defining that the research would be applied by using user-centered process seen below in Figure 9. User-centric design (UCD) is a movement that started in the 1980's when computer software professionals started to work together towards creating software around and with users. UCS is an iterative process where designers and stakeholders focus on the users and their needs in each part of the process (Gladkiy, 2018).

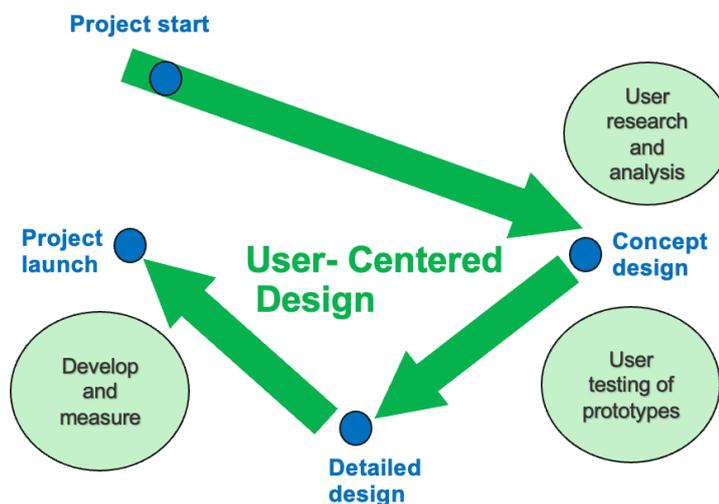


Figure 9. User-centered design development structure (adapted from Gladkiy 2018)

The project started by choosing the development objective and it was decided that the hypothesis of creating a calculator for user engagement benefits should be first verified via a survey. After this phase, VR held a preliminary concept design workshop as an internal brainstorming session. Brainstorming sessions are considered standard methods when there is a need to create ideas via a group (Ojasalo & al. 2014, 160). The participants consisted of 9 VR Matkalla development team members and VR UX and service designers who before the workshop had the task to find and then at the session showcase interesting calculators they have found or used online and present why they

found those particularly interesting. The proposed data model was also introduced, as VR had before the workshop received a data model for CO²-calculations per transport sector (car, train, bus) from Sitra and implemented it to their data platform. From there the prototype work of the calculator presented in the later focus groups was started and the user testing of the chosen prototype happened later in the focus groups. After focus group analysis was made the detailed design for the application calculator was finished and moved into development phase.

In choosing valid methods on validating user-centric design, the research used all of the methods in below Figure 10 to gain perspective during the research process. Survey/questionnaire was used to validate the initial hypothesis, during the focus groups usability testing and card sorting was used and expert interview was conducted to gather further understanding. During the whole process the thesis used participatory design by inviting customers, VR employees, VR consultants and other possible stakeholders to participate.

Method	Cost	Output	Sample size	When to use
Focus groups	Low	Non-statistical	Low	Requirements gathering
Usability testing	High	Statistical & non-statistical	Low	Design and evaluation
Card Sorting	High	Statistical	High	Design
Participatory design	Low	Non-statistical	Low	Design
Questionnaires	Low	Statistical	High	Requirements gathering & evaluation
Interviews	High	Non-statistical	Low	Requirements gathering & evaluation

Figure 10. Popular user-centered design methods (adapted from Novoseltseva 2019)

4.3.1 Human-centered design via user-centric approach

For the research, suitable design processes and methods were familiarized and because the constructive research was focused on answering a question related to the field of customer engagement, the studies and chosen design methods and processes were chosen to support it.

One of the most important sustainability practices is service design itself. A process, where designers create an optimal customer experience as a solution to the suit user needs. Digital service design looks at service primarily as a human experience rather than an economic activity (Penin, 2018, 24) and the key to implementation of a successful digital service is consideration of business implications introduced in Figure 11 such as desirability, viability, feasibility and sustainability of the service over time (Penin 2018, 280; Werdmüller 2018). The assessment of these elements must be redone along the process with concurring feedback elements in order to stay responsive and relevant (Penin 2018, 280).

Human-centered design thinking process (Werdmüller, 2018)

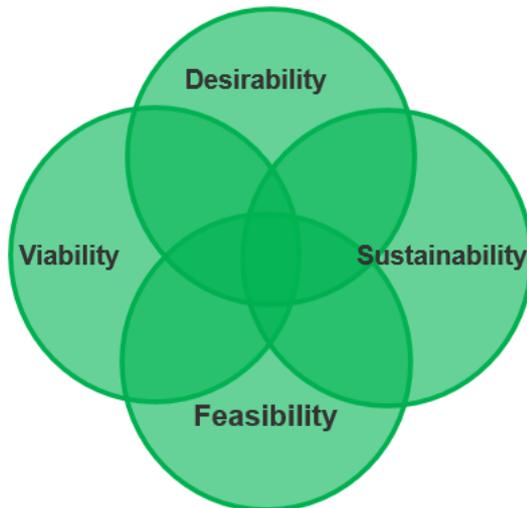


Figure 11. Human-centered design thinking process (adapted from Werdmüller 2018)

How UCD differs from human-centered design is simply that while all users are human all humans are not our users and in order to dive deeper into the business context of the needs the design has to focus on the target audience (Novoltseva 2020). In VR's case it meant inviting different stakeholders who were familiar with VR context: first analysing the

basic information important from the context of VR and its business area, understanding business goals and user needs for the calculator. Only by combining these three could the user experience fit for the specific needs for the research could be developed. The UCD information structure used is shown below in Figure 12.

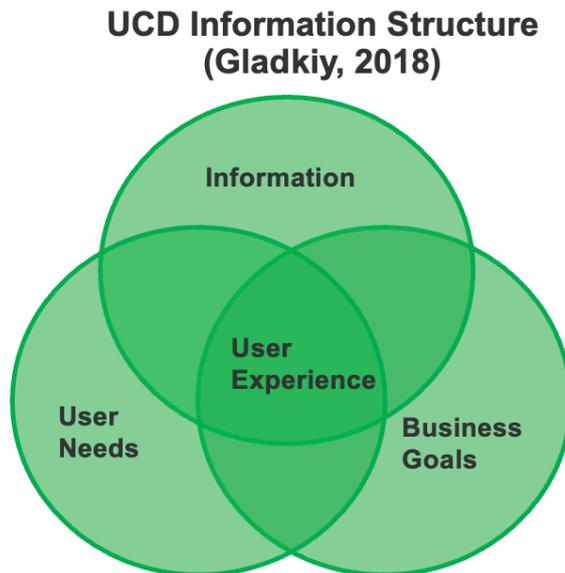


Figure 12. User-centric design structure (adapted from Gladkiy 2018)

As the project aimed for customer engagement the research design process needed to be user centric. Thus, the project team decided to use a personalised approach to the product design and chose to use user-centric design in the design of the CO²-calculator for VR's digital channels. The UCD process has six steps that VR also followed in agile manner during the research:

1. Specify the use context – collect information about the user's needs;
2. Specify clear business requirements — the designers and the stakeholders provide detailed specifications for the new product;
3. Create unique design solutions — building a solution, from rough concept to finished design;
4. Evaluate designs — through usability testing with actual users;
5. Implementation — the process of developing and delivering the product;
6. Deployment — the final product is frequently evaluated, as consumer needs evolve and change. (Gladkiy, 2018)

4.3.2 Survey research design

For development work, using a survey fits well to understand the starting point for the chosen research. As a research method it's efficient and can be used to reach wide audiences, however the weakness of it is that the researcher cannot know the seriousness of the participants behind the answers or their knowledge around the researched topic (Ojasalo & al. 2014, 40 & 121). In VR's case this was not an issue, as the need was to find out if there was more interest towards CSR matters than there were before.

In this thesis research the survey was used primarily for exploratory purposes about the interest in the CO²-calculator among customers however the survey also provided VR more detailed data on their customers' opinions about CSR both personally and about VR's CSR efforts as customers.

Surveys tend to be popular as they allow the collection of standardised data from a large number of respondents, and they are quite easy to both explain and understand (Saunders, Lewis & Thornhill 2019). From the commissioner's perspective, VR inevitable has one of the largest customer bases in Finland and thus reaching large groups of recipients via survey is rather easy and during the ongoing covid-pandemic more straightforward and safer than approaching people in live circumstances.

To better understand VR's customers' thoughts about the importance of CSR a survey was conducted. VR had previously in 2019 conducted a customer survey about CSR and the old survey was used to compare and analyse the possible impact of covid-19 of rising interest of CSR and overall rise of interest in sustainability in 2021.

In planning the survey is important to understand previous surveys around the topic, and this was done using both VR's own 2019 survey and by benchmarking surveys about corporate sustainability made by other businesses. The commissioner wanted to use the survey for other purposes than just verifying the CO²-calculator needs and in the design the focus was to create a clear structure for a three-part survey, found in Appendix 1. Theories suggest surveys should not be longer than 20 minutes, and for VR's survey the average answering time was about 7-10 minutes. The focus in the survey design was clarity and simplicity as the topic of sustainability can be considered quite wide area of different viewpoints. (Ojasalo & al. 2014, 130-131).

Firstly, the survey's intention was to gather data on customers' overall personal commitment to sustainability efforts in everyday life, their knowledge of VR's on-going CSR activities and their thoughts as VR customers about the importance of VR's sustainability actions. Secondly, through the survey it was also possible to sign up for VR's focus group where through the method of service design the author investigated the case of CO²-calculator and its possible effect to customer satisfaction. Then the author gathered data from the overall results to help form and prioritize ideas for VR's digital channels customer experience.

Before the survey was rolled out, it was tested among VR personnel and some outside stakeholders who are also VR customers to ensure its clarity. The findings from these tests helped to make some alterations to the survey and the final survey questions can be found from Appendix 1. Also, an introduction for the survey was written both in the invitation email as well as the front page of the survey made via tool called Webropol to make sure the recipients understood what the aim of the research was. The survey was open for three consecutive weeks in November, and it was sent to altogether 5000 recipients of which 5,5% responded.

4.3.3 Focus group interviews

Qualitative research is seen particularly useful for new product placement tests, as it fits well with gathering spontaneous reactions and communication testing among companies towards consumers. Focus group is a popular qualitative research technique that collects data through pre-planned group interaction interview model or by offering certain development themes for group discussion. The use of focus groups for research are mostly concerned with evaluating the acceptability of the company's products or services and the end goal is similar to other qualitative research – understanding the researched theme in a profound way. (Maison 2018, 11-12; Stevanovic & Welste 2018; Puchta & Potter 2004).

Focus group research was decided as it would deliver a good fit VR's purposes for the research and the method fits well to situations where the knowledge around the area is fragmented or wide. Focus groups are seen as an especially good fit for development work as they provide rich and versatile information for market research. Considering CO²-calculators can be seen as a current trend, as an approach focus groups offer a phenomenological approach suiting well to the topic in hand. The logic of phenomenological

approaches effectiveness lies in the fact that the researcher must share the experience of the consumers and thus the focus group allows the researcher to *experience the experiencing of the consumers*. (Ojasalo & al. 2014, 112; Stevanovic & Welste 2018; Puchta & Potter 2004).

For focus group discussion the facilitators should aim for creating an intimate setting that enables trust. In the past the ideal group size for focus groups has been considered to consist of 6-12 participants (Ojasalo & al. 2014, 211; Maison 2018, 37), but as a group that has proven to be too large to facilitate and with smaller groups there is more room for comfort and quality. For online circumstances for VR's purposes two different focus groups were decided to be held with the same agenda, as the worsening pandemic forced the focus groups to be held online. This proved to be a strength for geographical representation, as it enabled participants from all over Finland. Two different two-hour focus groups were held through online tool Teams in December of 2021 and the first group had 4 attending focus group members, and the second one had 5. VR's own personnel consisted of 3 persons, one leading the schedule and the overall facilitation roll-out, second person leading the first part of the focus group stimulative activities which was to get acquainted to the matter of climate calculators in general and the third person leading the stimulation activity regarding VR's own calculator development. The Figure 13 the preparation can be seen as a canvas model, which helped the team to plan the event in high-level together.

Preparation
<p>Goal</p> <p>We wish to receive feedback from our customers on creating an VR Matkalla in app CO2-calculator. Especially we want to know how the provided carbon footprint data would at best benefit them.</p>
<p>Context</p> <p>We are developing a CO2-calculator for VR Matkalla app. The calculator is intended to help VR customers on better understanding their carbon footprint.</p>
<p>Participants</p> <p>Participants collected from the CSR survey of 2021 sign up form. Participants are located diversly around Finland and represent different age and profession groups.</p>
<p>Script/Agenda:</p> <p>16:00-16:10 Start: Introductions - why we are here today 16:10-16:45 What makes a good CO2-calculator? 16:45-16:50 Break 5min 16:50-17:55 VR CO2-calculator prototype and activities around it 17:55-18:00 End of workshop</p>

Figure 13. VR's focus group sessions preparation canvas.

In creating a successful online focus group experience, there was a need for robust but easily useable online tool. For the focus group investigation part VR's team decided to use an online whiteboard tool called FigJam from Figma which is a collaborative interface design tool that VR uses for its digital channels design related work from app wireframes to web prototypes. For the workshop FigJam helped to transform live focus group tools online and provided a timer, online post-its and a board where participants can follow the ways of working. At the start of the session everyone was given a demo of the tool and with a little bit of help, every participant was able to use the tools provided from their own browser. As shown below in Figure 14, FigJam board was divided in two simulation activities, and in first phase the focus was to warm-up the users by discussing what overall makes a good CO²-calculator. Each user was responsible for creating their own post-it notes from the material that was shown to them or use them to answer the questions that were asked during the online session. In the second practice that focused on VR's calculator design, the users had to do card sorting and order the cards in the order of personal importance to them and also add comments via post-its to explain their choices.

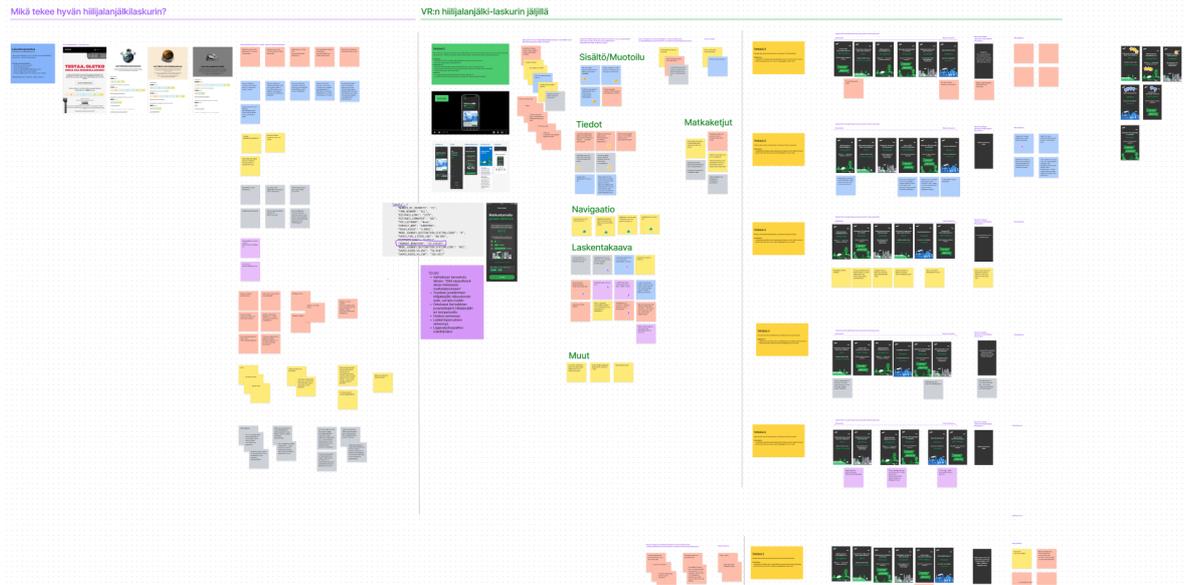


Figure 14. FigJam board used for focus groups interviews.

4.3.4 Semi-structured interview

A semi-structured interview method was chosen for the expert interview of Sitra. Sitra was chosen as an organization because it was mentioned being used by over 50% of the respondents via VR's survey and also because as it as a public organization cooperates with many Finnish companies and already helped VR to provide details about the consumption data in to the commissioners use it was seen as a reliable and natural source of gathering more detailed data. The interview was set up in mid-November for mid-December and the respondent received the questions a few days before the interview. The pre-prepared questions can be seen in Appendix 2.

In semi-structured interview the questions are drafted before the interview but can be changed and asked in different order than originally planned. Also, some questions can be added or left out if the interview lead into a certain direction. Semi-structured interview fits well when there has also been quantitative research and the data is being analyzed. Semi-structured interview was also considered suitable for gathering information about carbon calculators as the research aim was to study a certain phenomenon and its effect to its users. Interview is a good method in research when combined with other methods as it helps to deepen knowledge in the decided matter. (Ojasalo & al. 2014, 106-109)

4.3.5 VR digital channels calculator design

For VR's digital channels, two different tests regarding customer engagement related to carbon footprint calculations were conducted in order to understand interest towards the subject.

First one was an email that worked as a pre-test with a sample group similar to the population that would be tested through the mobile application. The email was sent at New Year's through VR's email marketing automation system Bloomreach where customers received stats of their travels and savings during 2021. This test worked as a validator to gather more understanding toward customer engagement through analysing opening rates of the email and the popularity of the engagement email through VR's social media channels.

From Figure 15 the content of the email can be seen; it has collected the users travelled kilometres via long distance train in the year 2021 and calculates emission savings based on if the user would have travelled the trips via car. It also emphasizes train as a carbon neutral choice.

Vuosi 2021 paketissa

Vuosi 2021 lähenee loppuaan ja on aika summata vuoden matkat.

Tänä vuonna olet matkustanut ainakin **1013 ratakilometriä!**
Näillä matkoilla hiilidioksidisäästösi oli **66.4 kg** verrattuna siihen, että olisit taittanut samat matkat henkilöautolla.

Jokainen junalla tekemäsi matka on hiilineutraali valinta. Kiitos, että olet ollut kanssamme yhteisellä matkalla ja kantanut kortesi kekoon vihreämmän tulevaisuuden puolesta. 

[Lue lisää junailun ympäristöystävällisyydestä](#)

Laskelmassa on mukana on vuonna 2021 tunnuksellasi ostetut ja tehdyt matkat. Mahdollisista kausilipuista olemme laskeneet mukaan matkat, jotka konduktööri on junassa tarkistanut. Päästölaskelmat perustuvat Väyläviraston ja VTT:n päästödataan ja kilometrimäärä asemien väliin ratakilometreihin.

Kiitos sinulle tämän vuoden matkoista ja upeaa uutta vuotta 2022. Nähdään junassa!

EN

Briefly in English

It's time to sum up the year. You've travelled at least **1013 kilometres** by train this year. By choosing the train, you've saved **66.4 kg** of carbon emissions, compared to travelling by car. Every journey you make by train is carbon neutral. Thank you for choosing to travel by train and for being on a journey together with us towards a greener future.

Figure 15. Email introducing VR customer about their travelled km in 2021 and carbon emission savings compared to a car

The second test was the app calculator. The first prototype for VR Matkalla application CO²-calculator design was designed for the focus group interview as prototyping allows the stakeholders to interact with the product and help the commissioner to understand different user types (Goldstein 2021, 97 & 116).

After the focus groups had been held and data analysed the work focused into creating a suitable release candidate as an MVP for January 2022. An MVP which means that before the development is considered ready, there is more valuable insights to be gathered from a bigger market and in VR's development model the first releases of any

new app feature are usually called MVP's to emphasize the fact that the development is on-going and open to further development.

The main development target of CO²-calculator Matkalla application "MVP" was released in January of 2022. This version already entailed some small additional changes from the focus group interviews as studying and responding to customers' needs early in the development phase is easier and saves costs than later redesign (Goldstein 2021, 115). In Figure 16 below there is a snapshot of the view that the calculator offers in Matkalla application for the user from their trips from 2021, and there is also a possibility for output whether the information was useful for them and a possibility to share the data through social media.

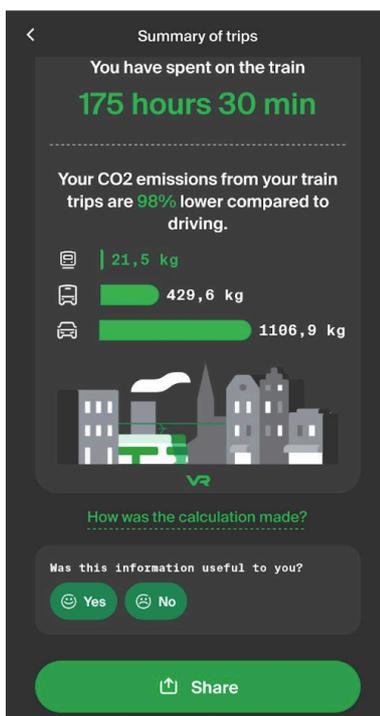


Figure 16. VR Matkalla application snapshot

For analytic data gathering, Google Analytics was used as a platform to collect data from the tests. The data collection included download data, summary of screen views of the calculator, some background information about the users, sharing of the calculation data and gathering the usefulness data of the feature as Yes/No-answers. This data could help analyse whether the calculator was found to be interesting for the customers use.

4.4 Reliability and validity

The methods used in the research (survey, focus group, semi-structured-interview, UCD design process) were designed based on theoretical models related to the subject and can be considered to have high validity. The target group for the survey was not preliminary checked to be experts in the area but as the focus was in customer and personal experience about the subject, it's not a valid target to behold. However, as CSR is a large topic area, there is no way to know how the term CSR was understood by the survey respondents. Also, survey's findings are subject to some limitations as the survey was only offered in Finnish.

For VR an average survey response rate is from 6-10% to be considered average, and the survey did not quite reach it by its 5,5% response rate however overall the subject can be considered rising in interest as the response rate in 2019 was 2,2%. The response rate can be affected also by the fact that the length of the survey answering time was also a bit over the VR average. In 2019 the survey was sent to over forty thousand customers and in 2021 to only five thousand, which can also mean that in that randomized group there weren't enough interested parties and that comparisons for 2019 and 2021 cannot be fully made as the structure and the sampling size is different.

Also, usually after their response to any VR questionnaire the customers are able to take part in a raffle and in 2021 that was not offered as we wanted to maintain sincerity of the group and gather interest from those customers who are truly interested in the topic itself. The interest level of 5,5% could implicate that while some consumers are interested to take part that still the topic of corporate responsibility is not yet well known or perhaps its not particularly interesting to majority.

Overall analysing the whole structure for the methods used for the calculator development purpose, as the research used joint methods to gain both general views and more in-depth analyses during the research, the validity of the test outcomes can be considered high.

4.5 Ethics and limitation

From ethical perspective the respondents' rights were respected and participants were informed about their consent to be able to choose whether they wish to participate in any of the activities during the research. The participants email link to the survey was sent to

VR's customers who have given consent to partake in surveys, but the response data was not used to individually parse down who answered. Confidentiality and anonymity were assured. In the last part of the survey, the respondents were asked their interest to partake in a customer focus group with VR and to assure their confidentiality to the survey answers the sign up for focus group was done via another survey link meaning the information given could not be traced from the first survey.

VR obeys data privacy laws with respectfully and as a responsible practitioner with large number of registered customers the organizations feel its duty is to inform its customers how they benefit from giving their consent and how it is used and preserved.

There are some limitations to findings of the survey and focus group. Firstly, the survey was distributed without any geographical restrictions, meaning that all participants have travelled in Finland, but their regions were gathered for background information. Secondly, the limitations of the survey and focus group was that only Finnish was used to conduct the survey, leaving out possible customers who speak Swedish or English.

For the focus group interviews, all participants were sent individual invites to protect all parties from investigating each other pre interview. All participants, both for survey and focus groups were informed that all personal information they shared during the process, would be deleted after the needed information was gathered. Data deletion occurred in December of 2021 and all sensitive information such as individual email addresses, or home addresses were destroyed. All of VR's data policy rules were thus followed carefully.

All data from the digital channels tests were processed anonymously during the data collection for the research result findings. Overall the processing of personal data of the users in VR channels follows VR's own privacy and data protection principles that are accepted by the users when signing up as VR customers.

5 Findings

In this chapter the results of the research findings are presented. The data that relates to the main research question and its sub-questions are examined in the chapter in more detail starting from survey findings to the focus group and onwards to the final testing of the calculator in VR's digital channels.

5.1 Survey findings

For the initial recognition of interest of a calculating a carbon footprint as a VR customer, the question of its seen importance was included into VR's concurring bi-yearly survey about CSR. The first time VR Group had sent a survey regarding customer views about CSR actions was in 2019. In the fall of 2021, the survey was renewed to serve a purpose on understanding CSR from a more customer-friendly and consumer-based perspective. This meaning that instead of asking common opinions about the thought state of VR's own CSR activities, the survey was designed to entail also personal questions about the respondents own interest towards sustainability in their everyday life.

The survey sent in 2019 was lead from on outsourced consultancy and was sent to 40 thousand customers of which 2,2% replied and because of the low answer rate the quality of the research was not considered high. For 2021, VR internally led the focus of the survey and as there are many development items going on with surveys, the decision was to send the survey to 5 thousand customers who have an active permission to be part of VR's customer surveys. The survey was open during November 2021 for three consecutive weeks.

Typically for VR a survey considered active with the participants gathers 6-10% of replies and with 2021 CSR survey the activity was 5,5% which is still considered a bit lower than the common threshold. Still, as the result was over half higher than for 2019, the trend for interest towards CSR matters can be seeing as growing among customers. To gather the survey data per legitimate interest towards the subject, VR chose not to offer any draw prizes for the survey respondents as a thanks of their activity, which could affect to the lower participation results.

For the purpose of the thesis related research, few questions from the survey should be introduced in more detail. First, as shown below in Figure 17 below the customers were asked whether the covid-19 pandemic has affected their views towards sustainability and 47.1% stated yes, which can be considered a high amount of change considering the matter. This validates that CSR is becoming a more common topic among consumers especially because of the effects that have risen during the last two years in which our world has changed.

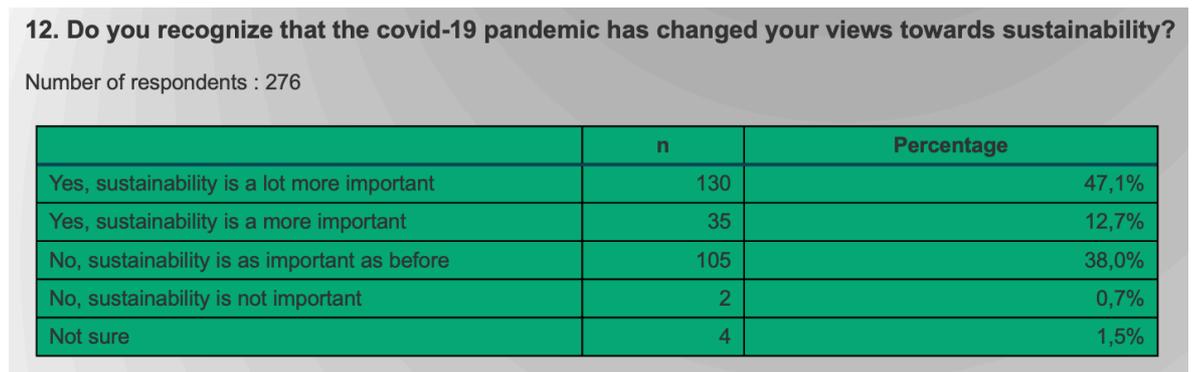


Figure 17. CSR Survey 2021, question 12.

The second question related to the study seen below in Figure 18 was more detailed towards the recognition of awareness to the customers own carbon footprint. 43,5% declared they are aware and 38,4% were not but interested in finding out theirs. In addition, if the reply to this question was yes, the customers were asked an open question of which carbon footprint tools they were most familiar with and from the 57 open answers 44% answered the Sitra carbon footprint tool called "Lifestyle test".

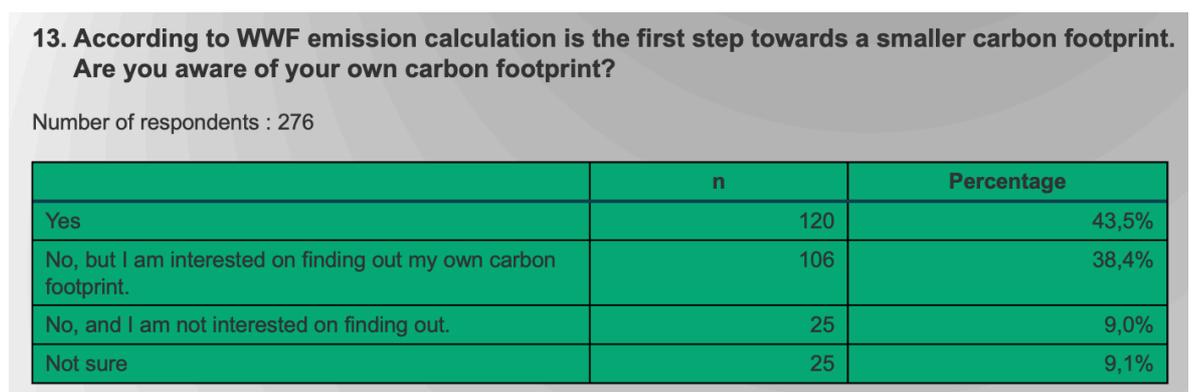


Figure 18. CSR Survey 2021, question 13.

Question 20 below as Figure 19 was specifically designed to know whether customers would be of interest on finding out their carbon footprint as VR customers. 50,4% replied yes and this was seen as a green light to continue the research for the thesis topic for creating a carbon footprint together with customers. In addition, in the end of the survey VR enquired an interest to attend a focus group related to VR's own CSR related development and from all the recipients of the survey, 17% signed up for a call back.

20. As a VR customer, are you interested to hear about your carbon footprint regarding your train travel?
 Number of respondents: 276

	n	Percentage
Yes	139	50,4%
No	84	30,4%
Not sure	53	19,2%

Figure 19. CSR Survey 2021, question 20.

To the research the survey acted as assurance point for the planned development work and could be considered as a positive sign to pursue the planning of the development of the CO²-calculator onwards for VR channels.

5.2 Focus Group findings

After the focus group the findings were gathered with the facilitators by arranging the post-it's in different groups by themes which were consistent in the discussion and interpreting those themes for the results. The analysis was supported by the gathered individual notes from the focus group workshops and by together. Some of the findings were easy to take to account in the development of the releasable calculator in VR Matkalla application and some of the findings will need further ideation after the first test in the app is completed and analysed. The main findings are gathered below in Figure 20 and analysed in more detail below.

Results
<p>Most interesting insights</p> <ul style="list-style-type: none"> • Content, User interface: Instead of using € in calculating savings, the focus group members preferred saving time, as train lets the customers select where they use their time • Information: offering comparison data to other travellers • MAAS: adding other modes of transportation to train travel • Navigation: strongly tied to own travels and trips • Calculation model: clear, could be developed to add the whole journey • Other: feedback option, sharing your footprint in social media, other categories than just transport
<p>Pains</p> <ul style="list-style-type: none"> • Clarity needed for naming titles and understanding calculation model • Calculators' location in the app • Also adding commuter traffic trains to the calculations (now only long distance) and later possible other services (Maas, Avecra)
<p>Gains</p> <ul style="list-style-type: none"> • Amount of saved time most interesting, secondly own carbon footprint, third monetary savings, however savings need clarifications • Wished having data comparing to other activities than just travel and thus giving the user a possibility to choose what they wish to compare to • Raising knowledge that VR already compensates all train trips is seen as a huge benefit

Figure 20. Focus group results

The interesting insight that occurred and changed the scope of the first release was that unlike in VR's internal preplanning, monetary comparisons towards travelling with a car were not seen that important for the customers in the focus groups. The customers preferred allocating saved time or having their own choice to select different variety of comparison data points on the impact of the saved carbon footprint. These could be for example related to living or food. The smaller development items were related to clarity of data, and they were easy to fix during development by gathering all the datapoints together and making changes during content copy writing process.

For the future development, customers would prefer to know the whole impact as their customer journey as a VR customer. Whether they use VR's commuter trains, or purchase services related to mobility as a service (MAAS) platform through VR app or purchase goods from VR restaurant car, it would be transparent to understand the whole

carbon footprint of their actions. Also, filtering personal and business trips would be a plus, as some companies set targets for business trips being more sustainable. Also for future considerations, customers want to understand the bigger picture by seeing data from other passengers compared to their own consumption to bring awareness of an average VR user statistics.

At the end of the session, the focus group members were also given a chance to fill a feedback form with three questions and 89% of participants filled the online survey. From the Figure 21 it can be shown that the participants felt overall very satisfied about the different items included in the workshop. Overall, the satisfaction for the workshop was asked in question 2 and the average satisfaction was 4,6. Also, the open comment feedback highlighted the positive atmosphere created by the organizers of the focus group and 100% of the participants would recommend participating in a VR workshop in the future.

1. How would you rate the following items of the workshop : (1. Not at all satisfied - 5. Very satisfied)

Number of respondents: 8

	Not at all satisfied	2	3	4	Very satisfied	Average	Median
Topic	0,0%	0,0%	0,0%	57,1%	42,9%	4,4	4,0
Schedule	0,0%	0,0%	28,6%	14,3%	57,1%	4,3	5,0
Assignments	0,0%	0,0%	0,0%	57,1%	42,9%	4,4	4,0
Tools (FigJam, Teams)	0,0%	14,3%	0,0%	42,8%	42,9%	4,1	4,0
Group size	0,0%	14,3%	0,0%	14,3%	71,4%	4,4	5,0
Fasilitation	0,0%	0,0%	28,6%	28,6%	42,8%	4,1	4,0

Figure 21. Focus group participant survey 2021, question 1

5.3 VR digital channels findings

The customer engagement pre-test via email was found successful because the email had statistically good opening rate of 53% for VR customer base. The biggest success was how actively the email was discussed in social media and how many customers contacted VR to receive the data too. Overall, the email data was that popular that VR had to give advice to its customers on how to turn on consent to marketing permissions in their customer information page and then ended up resending the email to the persons giving a later approval of consent. This bought over 1600 new consents and recipients to

the second round of emission data email. In Figure 22 below the reach of the pre-test is shown through visibility in one of VR's social media channels, its Facebook account.

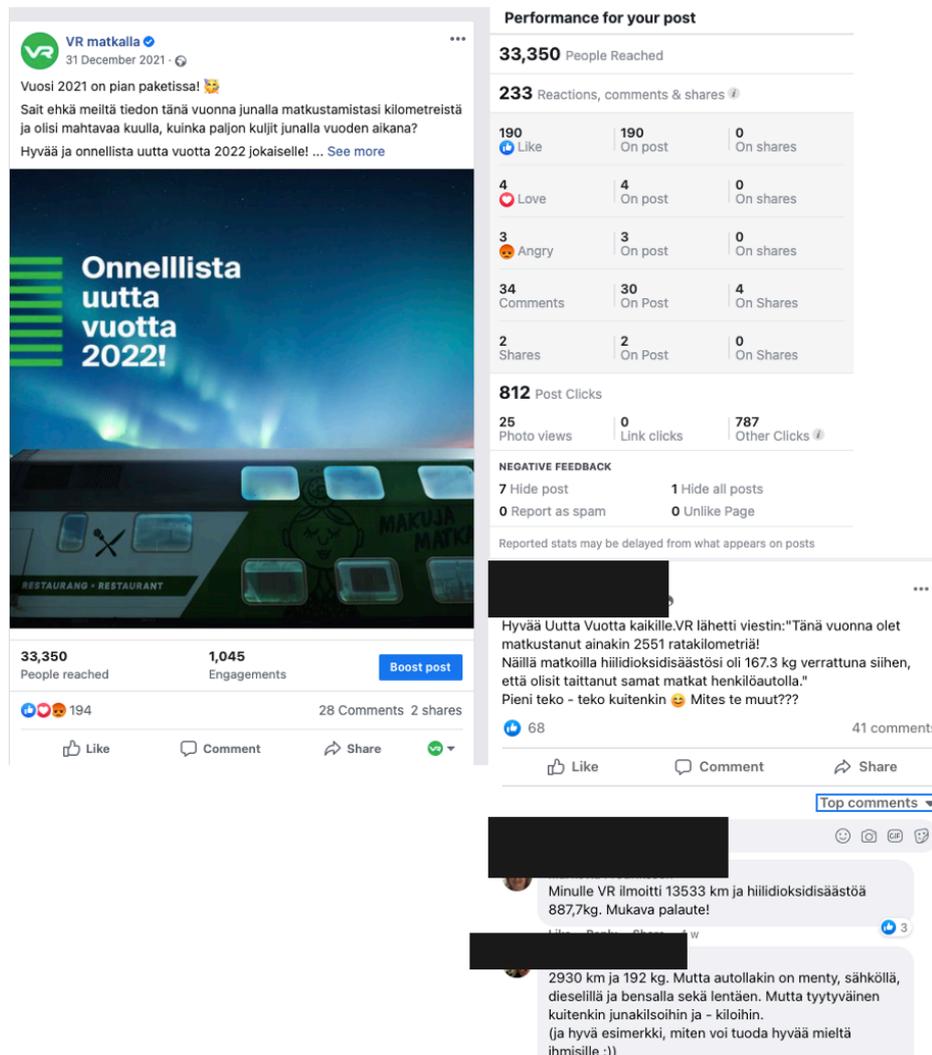


Figure 22. Social media reach through pre-test email

For VR Matkalla, test results concluded of following both the sharing of user's personal data and the reactions of the users on how useful the new feature was. The test data was gathered during 2.2.-7.3.2022 and during this time 44% of all users of the app had downloaded the latest version that included the new CO²-calculator. 16% of the users that had downloaded the new version had viewed their own emission data from the app. As Finland and VR is still suffering from covid-19 pandemic, the percentage of active

customers is currently lower than before, thus also meaning that active users using the VR app is lower than normally.

From the engagement part, the shares made by the users from their personal data was done 9700 times, with 2,5 shares per user, meaning some shared the data more than once. Those sharing the data, 66,3% were female and 33,7% men.

Feedback on the features usefulness was answered by 48% of all users that had seen their calculated travel data, and 85% thought the data to be useful for them. From this group of users 60,6% were women and 39,4% men. This gender related ratio seems to be in line with the overall user data of VR users, as more women statistically use public transport as well as share data through social media platforms.

5.4 Overall findings

To sum up the overall findings from the study, the main research question and the sub-questions are answered below in detail.

- **Main research question:** What is VR's audiences' response and interest level when incorporating personalized data related to sustainability in the form of a CO²-calculator in VR's digital channels?

To help establish an answer to the main research question the sub-questions are:

- What factors do VR customers consider most important about CO²-calculators?
- What are the different feasible approaches to visualize CO²-calculator through user-centric design in VR's digital channels?
- Does visibility of customers carbon footprint impact audience interest towards VR in its social media?

If the initial development seems lucrative by results, the research will also address the sub question of further development:

- What post MVP development items should VR consider after the initial launch of their CO²-calculator to further develop and measure in the future?

The hypothesis for the research question was that VR customers are interested in their own data and environmental impact and the research proved that this is indeed correct. The customers reacted well to the delivered data in the form of a CO²-calculator in both as an email version and mobile app feature.

The digital channel audiences seemed to be mostly interested in their yearly km-data and though the focus group interviews the study got the chance to understand which other data to consider for the future.

For user-centric approach it seems that there are two possible ways to provide more impact to the users; either provide more data from the customers personal perspective or provide more possibilities for them to compare their own data to different alternatives of consumption options such as money, time or more specific alternatives such as food, electricity etc. where the possibilities can be endless. Though it also should be noted that in order to work, the UI must still remain simple and easy to use for everyone.

Audience response in app was mostly positive, and what surprised both in the email tests and in the application tests was VR's audiences 100% positive reciprocity in social media channels as they were interested in knowing and sharing their data, whether through social media channels or through more impersonal applications such as Whatsapp or through email.

To sum up the findings together from the tests and development funnel, it's clear that customers enjoy being engaged; whether taking pride of being part in development that focuses on societally important areas of interest or simply are keen on seeing their individual data modified into something more from the organization they purchase from. What VR could provide in the future is sum up all possible purchases from their business int their CO²-calculator as now the data is limited to long distance travels and does not take into consideration other VR products or travel related purchases. The customer would like to be able to visually see all related purchases.

Linking a cause that affects us all and engaging and inviting stakeholders to be a part of it through technology that helps to transfer data and know-how faster and more transparently than ever before can help the relationship of customers becoming more engaged towards the organization. Customer data is important for any company and using it to benefit the customer itself by adding useful and personalized information helps the organization to connect better with its customers.

From the data gathered, there are also numerous useful findings for the future that the last chapter will discuss and make final conclusions on what kind of implications it should and could mean in the commissioner's case.

6 Discussion and conclusion

This chapter focuses first on the discussion of the thesis research. The results of the study are interpreted and compared and limitations of the made study discussed. High level results are highlighted and especially unexpected results addressed. Secondly the chapter introduces the final conclusions of the study and the most important findings are reflected to serve as a more long run plan for VR. The author also estimates their own learning, the significance of the study and the future direction for both VR and the thesis topic as a whole is addressed.

6.1 Discussion of results

The findings of the study suggest that customer engagement is affected positively by providing the customers information related to their own data and their use of VR's services. The study also suggests that providing such information is seen as useful to most of the users that have seen the data.

However, as the users are not specifically asked to provide any comments on why they are keen on sharing their data and what they find most useful from it, much more analysis cannot be made until there is more development or investigation related to the subject.

6.1.1 Theoretical implication of the study

Theoretically this study supports the idea that customer engagement can be supported by doing visible stakeholder related CSR actions. They are both growing interests of companies looking to build a more feasible business model and companies need new kind of openness and readiness to be able to achieve success through the actions in CE and CSR.

Both CSR and CE are at its best when shared. An open dialogue between the company and its stakeholders can lead to better relationship and more stable business model. Ongoing dialogue was seen as a key to the most successful CSR implementations through the theoretical findings and seemed to be proven true among VR customers.

Theory shows that by consuming customers are collaborating with organizations in order to make a difference in the world. How companies can attract consumers to take part is to make the choices to partake easy and somehow personal, such as showing particular

data or offering more personalized messages or guidance even in a digital platform. Technology can aid consumers towards a more personalized experience as data tells it like it is; where you have been, what you enjoy and how you spend your time. It can make revelations to the consumer and give important information to organizations about their own customer base to serve them better in the future.

6.1.2 Practical implication of the study

For other companies this thesis can provide helpful guidance on the things that matter the most when planning a visible and co-creational CSR program. Taking into account all necessary stakeholders to the company and identifying and mapping their opinions, then identifying their expectations and key concerns and lastly establishing some sort of feedback mechanism for responses. By investing time and effort in creating this sort of co-creational working model, the company can achieve transparency and results together with their customers.

For VR this study helps to understand the importance of using data where it fits in the development model and when the use is within the agreed scope of the customership. As the data regulations in Europe tighten, we still are more invested than ever to learn about how to minimize our consumption to be more sustainable and data such as this helps us understand our weight on it both as individuals and as a company. As the Sitra work shows, this kind of data needs to be shared across different ecosystems to gain more understanding what we can do better and where are we going at this rate. In order for us to fully invest in sustainability as a community, it needs to be the focus point of our everyday actions, together.

6.1.3 Limitations

The study has some limitations that can be considered as an input for future research. As the data model used for the released version of the calculator was limited to only comparing transport emissions and comparing time as a metric for the calculator, the next tests could include wider set of metrics to understand which kind of metrics are interesting to the users. The analytic data could also have more data about the user's background to understand if certain profiles are more interested in the topic than others.

Future research could use customer input when creating more two-way dialogue with customers related to VR's CSR goals, and also include input from VR's B2B customers as

that is something VR is planning to implement in the near future. The pandemic has hit corporate customers travelling habits for good and VR stands a chance as it offers more sustainable travel options than other ways of transport.

Customers that participated in the CSR survey also were very keen on joining some sort of VR customer panel, which means there is natural interest towards being a part of planning development around VR's business and how it participates in CSR. This is great input for VR, that their customers want to be involved as early as possible and have real interest in developing VR onwards together with VR personnel.

6.2 Recommendation

This section focuses on sharing recommendations from the research and study to the commissioner company and is divided into two parts:

- First part is based for the continuous development of the companies CO²-calculator
- Second part is based on findings about VR's CSR development related to customer engagement in the larger scale

6.2.1 Development of CO²-calculator in VR Matkalla application

How VR could develop the calculator for the future is to add more customer interaction through sustainability related know-how and tips, adding activation in its app and thus educating the user. Also, when VR is ready to add other services in its VR Matkalla application, it should also gather all the necessary emission data from its services to have a more complete look in emission data through the app.

For VR's Calculator development the next logical steps would be to gather more CSR related data from their own supply chain and add visibility to those to fully understand its impact as a company. Their commuter trains, other transport options via MAAS service integrations, restaurant services AVECRA and possible other future services VR is linked to should be also open for understanding the whole impact of the organizations emissions and how those could be reduced. For VR the possibilities in creating real impact with more transparency together with customers are really good.

6.2.2 Further CSR and customer engagement development for VR Passenger division

For VR the study supports the idea that customer engagement is one of the key points they should consider for their development model around the topic of CSR. Customers want to be more part of the work and indicate that they wish their opinions to be heard as well as want to together find out more ways to work in creating social impact. The customer of today is more individual than ever in their needs but the rise of society as an interest can be seen especially in the audience of VR.

There is an opportunity for companies to interact with their customers with a more dialogue-driven engagement which can help them to differentiate their selves from other organizations. Specially with CSR related activities, where there are many possibilities to educate, activate and listen to society, engaging customers to be a part of the joint venture is a natural progression.

As the study shows, VR has customers particularly interested in taking more active role in the topic as many of them signed up for being interested in VR's CSR work-related focus groups. VR could continue this work together with the customers by arranging a network or a panel where customers take more active part to help VR target their CSR development. It would make the work more transparent and make customers feel that they are a part of a bigger change.

For VR as generations change in the customer side and over half of the working age are millennials, there now seems to be higher demand for authenticity and liability when it comes to corporate actions and thus communicating about societal effects the Company is investing in. This can only rise with future generations and thus VR should keep in mind how to take part more actively in creating context that takes part when discussing societal issues.

VR already has a known position in Finland because it's such a central service to its habitants and they could easily emphasize their role on being an active educator for CSR. As the tests already show, a part of most active customers of VR are interested in finding more about their own role in sustainability issues and thus VR could create a more unique way of communicating and engaging their own stakeholders.

6.3 Estimation of students own learning during the study

For myself the thesis writer completing this study as a thesis was beneficial in many ways. One major reason was obviously that I got to use my own professional skills added with personal interests that helped to keep me motivated during the project. This was not just something I needed to do but I felt this was something I got to choose and very much base of my own interests. I also had a great thesis supervisor, who was able to steer me along the way by asking right questions, helping me delimit my research in order for it to be more concise to a certain topic and adding relevancy in order to make the study much more beneficial. Study wise, I also learned that things always take a bit more time than expected, I learned how to focus better and how to train my thinking into a more scientific mindset. There was quite much theory to be found around the topic and new information kept coming in throughout the journey. It was both fulfilling and sometimes made it harder to decide when to choose and from which publications. My study consisted of many different stages and methods of research, and in my eyes it made the project agile as it shows I am capable of juggling many different ways to do research, interpret information and make findings. On the other hand, as there are many sources of input throughout the study, it can create sizeable amounts of information that is harder to distribute in to roughly seventy pages.

As a pupil majoring in business technologies, I had the privilege of combining my own work in with personal interests to a project work that was also beneficial for my professional growth. As my work for the last years has been focused on leading teams that create digital platforms for especially customers I now got the chance to insert more personal interests related to CSR, which I hope is something I get to actually work with more in my future. One of the reasons that led me to VR Group two years ago was their potential in creating more sustainable choices for their community and I believe the road has just started in many ways and there are countless opportunities to grow even more as a company towards being one of the most sustainable companies in Finland. I think I have now more capabilities on leading projects related to this focus.

The study also happened to combine one of my favorite inputs, as I enjoy working with customers closely, and during covid that has been much more difficult than before and having the possibility to work closely with our customers in both the survey and the focus groups as well as analyzing results has been a pleasure. What I think the key learning point was once again was that with customers you can easily predict results, but more

often you are surprised and that is what keeps me interested on working with customer facing platforms now and in the future. Creating truly user centric products and environments is hard but rewarding and always surprising. Being able to create communal ecosystems digitally is a privilege and I feel I now have more understanding for the future. In our digital development we usually test our UI with test audiences, however it could be more beneficial to create customer focus groups as early in the development as possible for the best possible approach in creating more reciprocated and user-centric products. I think this study acted as a good lesson for a reminding both myself and the commissioner about that.

With the tools I used in addition to theory, I had the possibility to use many different online tools and platforms such as Google Analytics, Webropol and FigJam more closely than before myself as I mainly created the analytic tests, surveys and focus group materials. There are a lot of tools that keep improving in a rapid pace and keeping up with those is surely useful at any time. As during my studies, I combined more theoretical courses with more practical ones, such as writing a business strategy to a known company to creating UI robots in an online environment I feel that during this thesis I got to also do a bit of both.

I also feel I have much to learn after my studies are completed as the area of CSR is such a large field and because technology changes more rapidly than ever before. Thus, the biggest learning is to continue educating myself both in theory and in practice as there are many different possibilities in these two fields that allow me to be innovative, creative and think about the future. I thrive on the fact that these two fields both welcome new ideas or ways of thinking and that no day is quite the same. Also, the best work in these fields too is done communally, by coming together and figuring solutions together for a bigger audience.

6.4 Final conclusion

In this study, a CSR related activity such as a carbon footprint calculation and its effect in customer engagement in the commissioners audience was examined. The research was made by creating and analyzing audiences reaction through multiple steps and different development tests that lead to the creation of a carbon footprint calculator for VR's Matkalla application.

During the development process audiences interest hypothesis was examined both during focus group workshops and with sending an pre-test email wrap up consisting of results of the customers yearly emissions from 2021. Finally, after the VR Matkalla applications first version of a CO²-calculator was released early February of 2022 and the releases impact on VR's audience was followed up through analytic tools.

Enabling the calculating of carbon footprints online educates the users both on their individual impact as well as states that the company that offers such as service sees the work important to have visibility on. Companies that take on this role of being more transparent towards matters that address social wellbeing in our society and try to be a part of a sustainable change can indeed be the forerunners of CSR if they succeed on following their mission with sustainability in the core of their actions.

The idea proven along this research journey has been that in order to be successful in creating CSR work that matters, businesses should take their ecosystems along for the planning. This works both ways especially with end customers, as they feel they want more honesty and openness than ever before. On top of that, companies can also help the customer choose which way they want to participate in creating a more sustainable future. Businesses are at a great place to offer motivation, content and guidance – as long as it's encouraging and the company itself can also make visible examples on how they help the society.

Choosing this research topic visible to public is especially important when you represent a known consumer brand such as VR as it can lead an example to a unusually wide audience. Creating societal impact is tough work and what can guide VR through the change is a sense of purpose. With purpose, the progress comes naturally. The sense of purpose of being a responsible company does not mean VR has to be a perfect example or do all changes at once but what it must be able to provide is visible short-term goals in sake of the bigger goal of increasing sustainability in its efforts.

What helps VR communicate these changes to their customers is better understanding of what customers appreciate as VR's role in the societal change and what do they see important in the dialogue such as better transparency and openness. Transparency builds trust however as Wilhelm (2014, 262) states each company must choose the amount of transparency for that point of time as it is not something that should go from zero to hundred but a process that takes its time and evolves during.

Companies' public external reports give customers and public at large a chance to evaluate the performance of the business (Gutterman 2021, 45-46) and hold directors and executives responsible for achieving financial, social and environmental objects of which community concerns are more noteworthy to take on account. These yearly reports are simply not enough to keep customers intact of what is really happening and how can customers take part in the development work. What the theories suggest, and this thesis research proves is that customers wish and are excited to be more involved and also hope for guidance and joint cooperation with companies in creating a more sustainable lifestyle.

For overall CSR development in 2021 VR Group founded an internal program called "Sustainable network" which has invited employees from all parts of the organization together for planning and discussing sustainability related issues. The platform's intent is to make sustainability efforts more visible within the company and together focus on creating more joint targets. I am a part of that network and hope that with the network we can more honestly go through our goals, success and above all learnings on our efforts in sustainability.

As an employee I recognise VR Group has succeeded on making VR an attractive employer when the person has sustainability as a personal value, and I hope the company and society will benefit from this internal value. I believe that VR Group and especially VR's passenger services division with its wide customer base has the perfect position to positively effect consumers with behavioural economics meaning that VR can nudge itself and its customers towards more ethical choices even more boldly and openly than today. I also believe VR should not face these issues alone but continue to foster them through an open dialogue with their stakeholder community, with empathy and engagement and using data as well as personality in sharing these changes.

After completing this study, what I see vital is to include customer participation in this network, as the customers have joint interests with VR in creating a more sustainable lifestyle. CSR should not be just a moving target to a company, but a well thought out strategic tool for creating new business initiatives and beneficial ecosystems. According to Wilhelm (2014, 103) it's not something to strive or master either but something unreachable – a journey intent to keep going and the joy of it is in the pursuit of it and constantly learning new and evolving as a business. VR Group has a very good position to create more customer engagement and thus business value by being a forerunner in

sustainability. In the big picture VR Groups sustainability needs first and foremost a goal where it wants to position itself as a company regarding CSR and then leadership through joint targets in corporate, department and individual levels. After these are set up there needs to be a transparent way to follow up and a more focused program that will help the company to succeed in its mission to truly put sustainability in the centre of its strategy and thus purpose.

References

- Agyel, J., Sun, S., Kofi Penney, E., Abrokwah, E., Ofori-Boafo, R. 2021.
<https://journals.sagepub.com/doi/pdf/10.1177/21582440211040113>. Accessed: 15.1.2022.
- Badenes-Rocha, A., Ruiz-Mafé, C., Bigné, E. Engaging customers through user-and company-generated content on CSR. 2018.
<https://www.emerald.com/insight/content/doi/10.1108/SJME-09-2018-0043/full/pdf?title=engaging-customers-through-user-and-company-generated-content-on-csr>. Accessed: 15.1.2022.
- Berger, W. 2020. Top 16 problems of Carbon Footprints. DFGE.URL: <https://dfge.de/top-16-problems-of-carbon-footprint/>. Accessed: 7.12.2021.
- Carroll, A. 1991. Understanding the four levels of CSR. URL: <https://thecsrjournal.in/understanding-the-four-levels-of-csr/>. Accessed: 21.1.2022.
- Corporate Knights a 2021. The 2021 Global 100: How the world's most sustainable companies outperform URL: <https://www.corporateknights.com/rankings/global-100-rankings/2021-global-100-rankings/2021-global-100-ranking/>. Accessed: 12.9.2021.
- Corporate Knights b 2021. The 2021 Global 100: How the world's most sustainable companies outperform URL: <https://www.corporateknights.com/leadership/2021-global-100-progress-report/>. Accessed: 12.9.2021.
- Cramer, J. 2006. Corporate Social Responsibility and Globalisation: An Action Plan for Business, s. 13-14. Greenleaf Publishing Ltd. Sheffield. E-book. Accessed: 11.9.2021.
- Finnwatch 2020. Finnairin ilmastotavoitteet eivät vastaa ilmastotieteen tai omistajaohjauksen vaatimuksia. URL: <https://finnwatch.org/fi/uutiset/765-finnairin-ilmastotavoitteet-eivaet-vastaa-ilmastotieteen-tai-omistajaohjauksen-vaatimuksia>. Accessed: 5.9.2021.
- Espstein-Reeves, J. 2011. So You call this CSR? Or one of its many other names? Forbes. URL: <https://www.forbes.com/sites/csr/2011/07/28/so-you-call-this-csr-or-one-of-its-many-other-names/?sh=8d16d462d41b>. Accessed: 6.12.2021.

Fertik, M. 2019. Why customer engagement should be very business's top priority in 2020. Forbes. URL: <https://www.forbes.com/sites/michaelfertik/2019/12/16/why-customer-engagement-should-be-every-businesss-top-priority-in-2020/?sh=549823f16214>.

Accessed: 2.1.2022.

Gartenberg, C. & Serafeim, G. 2019. 181 Top CEOs Have Realized Companies Need a Purpose Beyond Profit. Harvard Business Review. URL: <https://hbr.org/2019/08/181-top-ceos-have-realized-companies-need-a-purpose-beyond-profit>. Accessed: 8.9.2021.

Gladkiy, S. 2018. User-Centered Design: Process and Benefits. Product Tribe. URL: <https://producttribe.com/ux-design/user-centered-design-guide>. Accessed: 10.1.2022.

Goldstein, B. 2021. Entrepreneurial Marketing. A blueprint for customer engagement. Sage publications. Accessed: 15.1.2022.

Gregory, B. 2021. What is Accessibility. URL: <https://www.interaction-design.org/literature/topics/accessibility>. Accessed: 7.12.2021.

Gutterman, A.S. 2021. Managing Sustainability, s. 7-162. Routledge. New York and London. E-book. Accessed: 9.9.2021.

Hietaniemi, E. 14.12.2021. Specialist, sustainable everyday life. Sitra. Interview. Helsinki.

Kesko. 2021. The 'Global 100 Most Sustainable Corporations in the World' list revealed – Kesko ranked again the most sustainable grocery trade company in the world URL: <https://www.kesko.fi/en/media/news-and-releases/investor-news/2021/the-global-100-most-sustainable-corporations-in-the-world-list-revealed--kesko-ranked-again-the-most-sustainable-groc/>. Accessed: 12.9.2021.

Kasanen, Lukka & Siitonen. 1993. URL: <https://thecsrjournal.in/understanding-the-four-levels-of-csr/>. Accessed: 20.12.2021.

Kaskinen, H. Tampereen Yliopisto. 2021. Vastuullisuudessa on vetovoimaa – Viherpesun sijaan kuluttaja haluaa kuulla yrityksen kehityksestä, myös virheistä. URL: <https://www.tuni.fi/unit-magazine/artikkelit/vastuullisuudessa-vetovoimaa-viherpesun-sijaan-kuluttaja-haluaa-kuulla-yrityksen>. Accessed: 12.9.2021.

Kocollari, U. 2018. Strategic corporate responsibility. Routledge. New York. E-book
Accessed: 10.9.2021.

Kumar, V. 2013. Profitable Customer Engagement: Concept, Metrics and Strategies, s.300. E-book. Accessed: 10.1.2022.

Lettenmeier, M. Jalas, M. 2019. Hiilijalanjäljen vuosi 2019. Sitra. URL:
<https://www.sitra.fi/blogit/hiilijalanjaljen-vuosi-2019/>. Accessed: 6.12.2021.

Lubin, D.A. & Esty, D.C. 2010. The Sustainability Imperative. Harvard Business Review.
URL: <https://hbr.org/2010/05/the-sustainability-imperative>. Accessed: 4.12.2021.

Miettinen, L. 2022. Pilottihankkeessa lasketaan S-ryhmän luontojalanjälki. Sitra. URL:
<https://www.sitra.fi/artikkelit/tutkijat-laskevat-s-ryhman-luontojalanjaljen/>. Accessed:
20.1.2022.

Novoseltseva, E. 2019. User-Centered Design: An Introduction. Usability Geek. URL:
<https://usabilitygeek.com/user-centered-design-introduction/>. Accessed: 11.1.2021.

O'Brien, P. & Gallagher, D. 2021. Truth be told. How authentic marketing and
communications wins in the purposeful age. Kogan page. London. Accessed: 14.1.2022.

Ojasalo, K., Moilanen, T., Ritalahti, J. 2014. Kehittämistyön menetelmät. Uudenlaista
osaamista liiketoimintaan. Sanoma Pro Oy. Helsinki. Accessed: 13.1.2022.

Tanskanen, J. 2021. VR:n toimitusjohtaja visioi junamatkailun tulevaisuutta: Luotijunalla
Moskovaan, Suomen lentoja rautateille ja matkustajamäärä tuplataan. Yle. URL:
<https://yle.fi/uutiset/3-12153957>. Accessed: 6.12.2021.

Thalesgroup. 2019. Digital transformation in the railway industry: URL:
<https://www.thalesgroup.com/en/germany/magazine/digital-transformation-railway-industry>
Accessed: 1.9.2021

Trefler, A. 2014. Build for change: Revolutionizing Customer Engagement Through
Continuous Digital Innovation, s. 2-152. E-book. Accessed: 13.1.2022.

Pelli, P. 2022. S-ryhmä aikoo laskea koko toimintansa luontohaitat Jyväskylän yliopiston
kehittämällä mallilla: ”Hiilijalanjäljen kaltainen mittari”. Helsingin Sanomat. URL:
<https://www.hs.fi/talous/art-2000008529961.html>. Accessed: 20.1.2022.

Penin, L. 2018. An Introduction To Service Design: Designing the Invisible, s. 24-280. London. Bloomsbury. E-book. Accessed: 6.12.2021.

Polman, P. & Winston, A. 2021. The Net Positive Manifesto. Is The World Better Off Because Your Company Is In It? Harvard Business Review. URL: <https://hbr.org/2021/09/the-net-positive-manifesto>. Accessed: 6.12.2021.

Pucker, K.P. 2021. Overselling Sustainability Reporting. Harvard Business Review. URL: <https://hbr.org/2021/05/overselling-sustainability-reporting>. Accessed: 6.12.2021.

Reszewski, F., Molenaar, D-M. & Ulrich, P. 2021. How Europeans Expect to Travel – and How Transportation Providers Can Respond. BCG. URL: <https://www.bcg.com/publications/2021/european-mobility-transportation-trends>. Accessed: 6.9.2021

Saunders, M.N.K, Lewis, P. & Thornhill, A. 2019. Research Methods for Business students. E-book. Accessed: 1.12.2021.

VR Group a 2021. VR Group as a company. URL: <https://www.vrgroup.fi/en/vrgroup/vr-group/>. Accessed: 5.9.2021.

VR Group b 2021. Responsibility – success for the common good. URL: <https://www.vrgroup.fi/en/vrgroup/responsibility/>. Accessed: 5.9.2021.

VR Group c 2021. Vision, strategy, and values. URL: <https://www.vrgroup.fi/en/vrgroup/vr-group/vision-strategy-and-values/>. Accessed: 5.9.2021.

VR Group d 2021. Business Operations. URL: <https://www.vrgroup.fi/en/vrgroup/vr-group/business-operations/>. Accessed: 5.9.2021.

VR Group e 2021. VR, i.e. passenger services. URL: <https://www.vrgroup.fi/en/vrgroup/vr-group/business-operations/passenger-services/>. Accessed: 5.9.2021.

VR Group f 2021. Vastuullisuusraportti 2020. URL: https://www.globalcompact.fi/resources/public//pdf/vr_group_vastuullisuusraportti_2020.pdf. Accessed: 5.9.2021.

VR Group g 2021. VR Groupin maine positiivisilla raiteilla – työ asiakaskokemuksen eteen jatkuu. URL: <https://www.vrgroup.fi/fi/vrgroup/uutiset/vr-groupin-maine-positiivisilla-raiteilla-tyo-asiakaskokemuksen-eteen-jatkuu-090920200647/>. Accessed: 5.9.2021.

VR.fi h 2021. Vastuullisuutta, joka ei jää yrityksen tasolle. URL: <https://www.vr.fi/en/vinkkeja-junamatkailuun/uusilla-raiteilla/environment>. Accessed: 5.12.2021.

Wallenius, D. 2021. Ratahankkeet saivat uutta vauhtia johtajanimitysten myötä – uudet junaradat lyhentäisivät matka-aikoja Helsingistä Turkuun ja Tampereelle. Helsingin Sanomat. URL: <https://www.hs.fi/kotimaa/art-2000007967585.html?share=589adc49eeb8c727d96197db852fb4f0>. Accessed: 11.9.2021.

Wilhelm, K. 2014. Making Sustainability Stick. The Blueprint for Successful Implementation. Pearson. New Jersey. Accessed: 18.12.2021.

United Nations. 2021. The 17 Goals. URL: <https://sdgs.un.org/goals>. Accessed: 11.9.2021.

Attachments

Appendix 1. 2021 CSR Survey to VR customers



Vastuullisuus VR:llä

 Pakolliset kentät merkitään asteriskilla (*) ja ne tulee täyttää lomakkeen lähettämiseksi.

Vastuullisuus on VR:n keskeinen arvo ja missio. Mitä paremmin me VR Groupissa onnistumme, sitä enemmän yhteiskunta ympärillämme hyötyy. Hyvinvointi lisääntyy, kun arjen matkat ja teollisuuden kuljetukset sujuvat. Myös ilmasto kiittää, kun asiakkaamme valitsevat yhä useammin junan. Matkaamme kohti Suomen hiilineutraalia tulevaisuutta. **Vastuullisuuslupauksemme ovat turvallisuus, asiakaslähtöisyys, työntekijäkokemus, ympäristövastuu ja yhteiskuntavastuu.**

Olemme tietoisesti panostaneet vastuullisten toimintatapojemme kehittämiseen ja läpinäkyvyyteen ja nyt kartoitamme asiakkaidemme omia ajatuksia liittyen vastuullisuuden teemoihin ja siihen, miten ne näkyisivät vielä paremmin asiakkaille meidän toiminnassamme.

Miten VR:n vastuullisuus näyttäytyy sinulle? Mitä vastuullisuusvalintoja suosit omassa arjessasi? Miten VR voisi tulla vieläkin vastuullisemmaksi tukien samalla valintojasi asiakkaana?

Osallistu VR:n vastuullisuuden kehittämiseen - kerro meille ajatuksesi **24.11.2021** mennessä. Palautteesi hyödynnetään VR:n yritys vastuun kehittämisessä.

Voit lopuksi ilmaista osallistumishalukkuutesi aihealueen kehittämiseen myös jatkossa jättämällä yhteystietosi mahdollista yhteydenottoa varten. Vapaaehtoisesti annettuja yhteystietoja ei käytetä muihin tarkoituksiin. Kaikki kyselyn vastaukset ovat nimettömiä ja luottamuksellisia, eikä yksittäisiä vastauksia yhdistetä henkilöihin vaan tuloksia tarkastellaan kootusti.

Vastaaminen vie aikaa n. 7-10 minuuttia.

Lue lisää vastuullisuuslupauksistamme: <https://www.vrgroup.fi/fi/vrgroup/vastuullisuus/>
Vuoden 2020 VR Group vastuullisuusraportti: <https://2020.vrgrupraportti.fi/fi/vuosiraportti-2020/>

Osa 1: Perustiedot sinusta ja mielikuva VR:stä vastuullisena yrityksenä.

1. Ikäsi *

Alle 18

18-24

25-44

45-64

65+

2. Matkani VR:llä ovat useimmiten: *

Työmatkoja

Liikematkoja

Opiskelu tai koulumatkoja

Vapaa-ajan matkoja

3. Kuinka usein matkustat? *

Päivittäin tai lähes päivittäin

1-3 kertaa viikossa

1-3 kertaa kuukaudessa

2-6 kertaa vuodessa

Harvemmin

4. Tiedätkö VR:n vastuullisuustavoitteista? *

Kyllä, tiedän tarkasti

Kyllä, tiedän osin

En

5. Tunnistatko VR:n vastuullisena yrityksenä? *

Kyllä

Ei

Vastuullisuuslupauksemme VR:llä ovat turvallisuus, asiakaslähtöisyys, työntekijäkokemus,

ympäristövastuu ja yhteiskuntavastuu.

6. Mistä aktiviteeteista tunnistat VR:n parhaiten vastuulliseksi? Numeroi vastaukset tärkeysjärjestykseen 1-5 niin että 1 on tärkein ja 5 vähiten tärkein. *

Turvallisuus raiteilla	<input type="radio"/> 1
	<input type="radio"/> 2
	<input type="radio"/> 3
	<input type="radio"/> 4
	<input type="radio"/> 5
Asiakaslähtöisyys (kampanjat, tasa-arvoiset palvelut kaikille)	<input type="radio"/> 1
	<input type="radio"/> 2
	<input type="radio"/> 3
	<input type="radio"/> 4
	<input type="radio"/> 5
Työntekijäkokemus (VR pitää huolta työntekijöistään ja he ovat koulutettuja tehtäviinsä)	<input type="radio"/> 1
	<input type="radio"/> 2
	<input type="radio"/> 3
	<input type="radio"/> 4
	<input type="radio"/> 5
Ympäristövastuu (päästökompensaatiot, jätteiden käsittely)	<input type="radio"/> 1
	<input type="radio"/> 2
	<input type="radio"/> 3
	<input type="radio"/> 4
	<input type="radio"/> 5
Yhteiskuntavastuu (hyväntekeväisyys, hankinnat)	<input type="radio"/> 1
	<input type="radio"/> 2
	<input type="radio"/> 3

Osa 2: Yritysvastuullisuus ja vastuullisuus omassa arjessa. Kerro meille omasta arjestasi asiakkaana ja yksityishenkilönä liittyen vastuullisuuteen.

7. Mikä seuraavista väittämistä sopii parhaiten sinuun koskien yritysten vastuullisuutta? *

- Yritysvastuullisuus on hyvin tärkeää minulle ja kiinnitän aktiivisesti huomiota yrityksen vastuullisuuden periaatteisiin
- Yritysvastuullisuus on melko tärkeää, ja yritän valita yrityksiä, jotka tunnistan vastuullisiksi esimerkiksi mainonnasta tai mediasta
- Yritysvastuullisuus ei ole kovin suuressa roolissa. Kun minulla on valinnanvaraa, suosin kuitenkin yrityksiä, jotka tunnistan vastuulliksi
- Yritysvastuullisuus ei ole tärkeää minulle

8. Mikä vastuullisuuden osa-alue sinua erityisesti kiinnostaa ja miksi?

400 merkkiä jäljellä

9. Mitkä on mielestäsi tärkeimmät syyt siihen, että yritys painottaa vastuullisuutta? Laita vastaukset tärkeysjärjestykseen 1-5 niin että 1 on tärkein ja 5 vähiten tärkein. *

	<input type="radio"/> 1
	<input type="radio"/> 2
Parantaakseen imagoaan	<input type="radio"/> 3
	<input type="radio"/> 4
	<input type="radio"/> 5
	<input type="radio"/> 1
	<input type="radio"/> 2
Edistääkseen yhteiskuntaa ja ympäristöä	<input type="radio"/> 3
	<input type="radio"/> 4
	<input type="radio"/> 5
	<input type="radio"/> 1
	<input type="radio"/> 2
Edistääkseen liiketoimintaa	<input type="radio"/> 3
	<input type="radio"/> 4
	<input type="radio"/> 5
	<input type="radio"/> 1
	<input type="radio"/> 2
Pyrkiäkseen saamaan huomiota asiakkailtaan	<input type="radio"/> 3
	<input type="radio"/> 4
	<input type="radio"/> 5
	<input type="radio"/> 1
	<input type="radio"/> 2
Pyrkiäkseen houkuttelemaan potentiaalisia työntekijöitä	<input type="radio"/> 3

10. Mielestäsi, kuinka vastuullisuustoimet vaikuttavat yrityksen imagoon? *

- Positiivisesti
- Neutraalisti
- Negatiivisesti

11. Teetkö itse omassa arjessasi valintoja, jotka edesauttavat vastuullisuutta yhteiskunnassamme; joko ympäristön tai yhteiskunnan osalta? *

- Kyllä
- En
- En ole varma/En tietoisesti

12. Minkälaisia asioita valintasi ovat? Voit valita halutessasi useamman vaihtoehdon. *

- Ympäristövastuu (huolehdin ympäristöstä ympärilläni, mm. Kierrätys, päästöt, liikkuminen, hankinnat)
- Yhteiskuntavastuu (olen mukana yhteiskunnallisissa hankkeissa vapaa-ajallani tai työni kautta tai suosin yrityksiä tai järjestöjä jotka ajavat yhteiskunnallisia asioita)
- Muut syyt, mitkä

13. Tunnistatko että covid-19 pandemia on muuttanut suhtautumistasi vastuullisuuteen? *

- Kyllä, vastuullisuus on yhä tärkeämpää
- Kyllä, vastuullisuus on melko tärkeää
- Ei, vastuullisuus on yhtä tärkeää kuin ennenkin
- Ei, vastuullisuus ei ole tärkeää
- En osaa sanoa

14. Päästölaskenta on Maailman luonnonsäätiö WWF:n mukaan ensimmäinen askel kohti pienempää hiilijalanjälkeä. Oletko tietoinen hiilijalanjäljestäsi? *

- Kyllä
- En, mutta olisin kiinnostunut tietämään hiilijalanjälkeni
- En, enkä ole kiinnostunut tietämään
- En ole varma

15. Minkälaisia laskureita/palveluita tunnistat kokeillesi hiilijalanjäljen mittaamiseen?

400 merkkiä jäljellä

16. Miksi et koe hiilijalanjäljen laskemista hyödylliseksi?

400 merkkiä jäljellä

Osa 3: Yritysvastuullisuus VR:n asiakkaana. Kerro meille mitkä asiat vaikuttavat asiakaskokemukseesi juuri VR:n asiakkaana.

17. Mitkä syyt saavat sinut ostamaan VR:n tuotteita? Voit valita halutessasi useamman vaihtoehdon. *

- Ympäristö ja vastuullisuus
- Matkustusmukavuus
- Hinta
- Tuotevalikoima (lipputyypit, lisäpalvelut, reittivaihtoehdot)
- Laadukas palvelu (toimivat ostoskanavat, hyvin sujunut matka)
- Ei ole muita vaihtoehtoja

Muu, mikä

18. VR:n junamatkustajana mitkä asiat näet tärkeimpinä yritysvastuullisuuden kannalta? Laita vastaukset tärkeysjärjestykseen 1-5 niin että 1 on tärkein ja 5 on vähiten tärkein *

Energiantuotannon tehokkuus, alhaiset päästöt	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5
Turvallisuus, liikennöitsijän vastuullisuus matkan onnistumisesta	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5
Kierrätys, jätteen vähentäminen	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5
Palveluiden saatavuus tasapuolisesti (juna tarjolla monipuolisesti eri alueilla, myös haja-asutus)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5
Yhdenvertaisuus/esteettömyys digitaalisena ja fyysisenä palvelukokonaisuutena (ilmainen wifi saattajalinnu saavutettavat digipalvelut lemmikkipalvelut)	<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3

19. Edellisen kysymyksen vastausvaihtoehtojen lisäksi mitä muita asioita ottaisit huomioon yritysvastuullisuuden kannalta VR:llä?

400 merkkiä jäljellä

20. Toivoisitko että VR tarjoaisi enemmän palveluita yhdessä alan muiden toimijoiden kanssa kokonaismatkallesi? *

- Kyllä
- Ei
- En osaa sanoa

*Kuten junan yhteyteen sopivat bussiyhteydet, lentoliikenteen palvelut, taksit tai autonvuokraus asemalta eteenpäin, kaupunkipyörä tai skuuttivuokra tai esimerkiksi liityntäpysäköinti asemillamme)

21. Kuinka tärkeitä seuraavat tekijät ovat sinulle koskien junamatkaa täydentäviä muita toimijoita. Laita vastaukset tärkeysjärjestykseen 1-6 niin että 1 on tärkein ja 6 on vähiten tärkein. *

Operoijan toiminnan vastuullisuus	<input type="radio"/> 1
	<input type="radio"/> 2
	<input type="radio"/> 3
	<input type="radio"/> 4
	<input type="radio"/> 5
	<input type="radio"/> 6
Toimivat vaihdot junan kanssa	<input type="radio"/> 1
	<input type="radio"/> 2
	<input type="radio"/> 3
	<input type="radio"/> 4
	<input type="radio"/> 5
	<input type="radio"/> 6
Kokonaismatkan hinta	<input type="radio"/> 1
	<input type="radio"/> 2
	<input type="radio"/> 3
	<input type="radio"/> 4
	<input type="radio"/> 5
	<input type="radio"/> 6
Mahdollisimman lyhyt kokonaismatka-aika	<input type="radio"/> 1
	<input type="radio"/> 2
	<input type="radio"/> 3
	<input type="radio"/> 4
	<input type="radio"/> 5

22. Minkälaisia läpinäkyvyystekijöitä vastuullisuuden osalta kaipaisit ostamasi tuotteen kohdalla? Voit valita halutessasi useamman vaihtoehdon. *

- Näen hinnasta tuotantokustannukset ja mistä osista hinta koostuu
- Näen kokonaishinnan mistä ostamasi palvelu on muodostunut
- Näen ostamani matkan/ruuan energiakulutuksen (hiilijalanjälki)
- Näen ostamani palvelun työllistävän vaikutuksen
- Muu, mikä
- En kaipaa lisäläpinäkyvyyttä

23. Olisitko valmis maksamaan enemmän tuotteesta, jonka tuottaa yritys, joka on sitoutunut lisäämään vastuullisuutta yhteiskunnassa? *

- Kyllä
- Ei
- En osaa sanoa

24. Kiinnostaisiko sinua VR:n asiakkaana kuulla lisää hiilijalanjäljestäsi liittyen matkoihisi? *

- Kyllä
- Ei
- En ole varma

Lämpimät kiitokset vastauksistasi!

Lopuksi voit vielä halutessasi jättää meille avointa palautetta ja mietteitäsi koskien yritysvastuuta ja vastuullisuutta.

Älä jätä alla olevaan tekstikenttään yhteys- tai henkilötietojasi. Mikäli haluat kommenttiisi vastauksen, jätä palautetta palautelomakkeen kautta osoitteessa: <https://lomakkeet.vr.fi/fi/palautelomake>

25. Avoin palautteesi/mietteesi koskien yritysvastuuta ja vastuullisuutta.

1000 merkkiä jäljellä

26. Haluaisitko jatkossa olla osa VR:n vastuullisuuspaneelia tai fokusryhmää kun kehitämme vastuullisuuteen liittyviä tavoitteitamme eteenpäin? Jos olet kiinnostunut, sinut ohjataan erilliselle lomakkeelle yhteystietojen jättämistä ja mahdollista yhteydenottoa varten. Otamme erikseen yhteyttä loppuvuoden 2021 aikana.

Emme yhdistä kyselyssä antamiasi vastauksia yhteystietoihisi. *

- Kyllä (jätä yhteystietosi kyselyn jälkeen avautuvalle erilliselle lomakkeelle)
- En

Appendix 2. Expert interview questions about Sitra lifestyle-calculator

Part 1: The premise to the calculator – from development idea to release

1. Where did the original idea for the calculator come from? Mistä idea laskuriin alunperin lähti?
2. How did you start with planning the content and what would the calculator consist of as a whole?
3. Who were part of the planning process? For example experts, outsourced consultants or users.
4. How did you decide the content of the first release?

Part 2: Data, feedback and post original release development

5. CO²-data is calculated slightly differently within different CO²-calculators, how did you end up using the calculation model you base your calculations on?
6. What sort of feedback have you received from the calculator?
7. What feedback has been expected? What feedback has surprised you?
8. How have you developed the original release from the gathered feedback? How, for example does the first published version differ from the current one?
9. What kind of plans for the future do you have for the calculator and overall development of raising awareness of carbon footprint?