

Transition Through Handprint Business Design for Eco-Responsible Consumer Solutions

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Abstract

The requirements for corporate environmental responsibility have shifted from reducing the carbon footprint of production to also cover the increasing use of carbon handprint by lowering the environmental impact of the offering. This paper discusses the guidance and development tools that support environmentally responsible, customer-orientated offering development in small-scale businesses. This support for the businesses has been created through business interviews, benchmark analysis, and co-creation in training sessions. The customer-driven design tools for environmentally responsible product and service solutions consist of a systemic design type of loop canvases to enable the modelling of low-impact consumption and production, and tools to analyze possibilities to lower the consumption impact of offerings, to cover the customer journey, and to support customer behavior change. The design of environmentally sustainable services changes the design goal from customer-driven, desirable solutions to transformation support, for customers as well as for businesses.

Keywords: corporate responsibility, sustainable consumption, behavior change, carbon handprint

Introduction

In the face of the threats of climate change, the drastic decline in biodiversity, overconsumption in developed countries and subsequent resource scarcity, corporate environmental responsibility is an urgent focal point for economic development. Solutions to the ecological sustainability crisis require a reform of economic operation models (Lettenmeier et al., 2019, p. 4-5).

If we are to keep the global temperature increase within safe limits, consumption patterns must change significantly in countries that function according to the

consumption amounts in many Western developed countries (Lettenmeier et al., 2019, p. 4–5). Companies and their offerings play an important role in offering possibilities for this change. As consumers begin to understand the demand for change, consumption trends are changing in an environmentally responsible direction. Consumers' expectations are increasing in terms of sustainable choices (Accenture Interactive, 2022; Euromonitor International, 2022; Greene & Korkman, 2022).

Corporate environmental responsibility must therefore also cover the possibilities of transforming consumption in a low-impact environmental direction, in addition to environmental responsibility in production and other company-based activities. These environmental sustainability demands can be referred to as double responsibility demands.

Businesses have paid attention to how they could lower their carbon footprint, their carbon emissions, or other environmental impacts. Now, attention is also being focused on environmental handprint in businesses. This points to the climate benefits or the emissions avoided by using a product, process, or service. A company can generate a carbon handprint by supporting customers to with services that reduce their carbon footprint. The emphasis turns to the positive future effects on emissions instead of focusing on the current negative effects of emissions, as the carbon footprint does (Sitra, Carbon Handprint). There are even projects and businesses that start to calculate the net impact of companies such as the Finnish Upright project (Upright project).

Support for handprint design in small-scale businesses

In 2020, small-scale businesses with fewer than 50 staff members comprised 37% of Finnish businesses (Tilastokeskus. Yritykset). In addition to this, many local services are provided by small-scale active entrepreneurs that work as individuals or in small groups of professionals. The input of these businesses and entrepreneurial actors in environmentally sustainable transitions is of key importance. They are especially influential in supporting local transformative processes, as many of their offerings support consumers and citizens in their everyday activities and thus in their consumption habits. To support these small-scale businesses and entrepreneurs in Finland, the aim of two projects at our university is to help them with customer-oriented environmental responsibility by utilizing systemic design, customer-driven design principles, service design, and the design of behavior change tools.

Environmentally responsible product and service development projects that tackle environmentally low-impact consumer-driven solutions in small businesses have tried



to support companies to react to the rising trend and global necessity of handprint solutions. Individual customers expect companies to support their own changing needs for low-impact consumption and to provide products and services based on their sustainability values. However, global customer research also points out that consumers are not willing to lower their requirements and satisfaction deriving from the phenomenon of consumption itself (Greene & Korkman, 2022). For businesses it is important to note that a similar type of pressure on customers' environmental responsibility requirements can also be seen in B2B customer segments, and consumer segment learning can partly be transferred to design for this segment.

A project with a study scanning national Finnish and international product and service development solutions that support customers' environmentally responsible activities began at the beginning of 2022. This included the analyses, assessments, and creation of the interaction methods for engaging and supporting both businesses and customers from the perspective of environmentally responsible consumption. Related training has been conducted to improve the understanding and skills of the regional small-scale businesses for this kind of environmental expertise and responsibility. The training included a customer-driven approach, the design of low environmental impact services and products, and communication. These guidance and development tools have been piloted in real-life training sessions and will be published as virtual learning material. (Kälviäinen et al., 2023)

The important notion in the transformative design toward low-impact environmental consumption has been to consider how to help businesses look deep into the challenges of everyday consumption behavior and how they can integrate low-carbon behavior support for their customers in their activities. Based on the information gathered in the initial business survey and the operational analyses of existing businesses, the projects have developed double- and triple-loop models to facilitate sufficiently easy, first-hand analysis of the business opportunities of customer-oriented environmental responsibility. The models help the businesses to understand, through systems-based flows, which stages and means their services and products can help customers via environmentally responsible behaviors, and what these solution shifts mean in related production activities. In addition, more detailed, but sufficiently simple design tools for businesses with their carbon handprint solutions have been created as a mix of low-impact consumption behavior change advice, customer journeys, and psychological behavior change means.

These tools are based on earlier work about environmentally low impact consumption with the support from service design and behavioral psychology. (Kälviäinen 2022; Kälviäinen 2019).



Extended customer attention for transformation

Tackling the challenge of climate change and declining biodiversity requires radical changes in high consumption patterns and lifestyles. It can be viewed so that the root cause of environmentally harmful effects of industries and businesses is the overconsumption culture, rather than the extensive production that would not exist without it. Calculations for staying within the 1.5-degree global temperature rise indicate that the environmental impacts of consumption in developed countries should be reduced 70% by 2030 and 90% by 2050 (Lettenmeier et al., 2019, pp. 4–5). The change in production into an environmentally efficient direction and even turning to circular solutions will not be enough, since the change toward reducing harmful and extensive consumption is necessary. Business-based products and services play an important role in bringing about and supporting this required transformation.

Around 70% of CO₂ emissions in developed countries are caused by the daily consumption of residential households. The means to decrease the emissions of consumption include reducing the use of living space, heating, energy, electricity, and water, switching to renewable energy solutions, using low impact means of mobility, avoiding high-carbon food choices and food waste, reducing the purchase of goods, and prolonging the use of goods (Salo & Nissinen, 2017, p. 14–22). Consistent findings in consumer research are the nature-positive attitudes of consumers to act in an environmentally responsible manner, but there is still a lack of responsible actions and behaviors in practice (White & Habib, 2018, p. 9).

The importance of positive customer experience is prominent as a means of competition in saturated markets. Customer-driven approaches and service design have typically tried to capture the needs and desires of targeted customer groups to create desirable offerings with a pleasurable customer experience.

It is noticeable that consumer demands toward corporate responsibility are growing globally. Several of the consumer trend forecasts for 2022 indicate related consumption attitude and behavior transformations (Accenture Interactive, 2022, p. 17; Euromonitor International, 2022). The changes in the product relationships globally are illustrated by the Stuff in Flux 2 research, which highlights the already discernible consumption shift from the satisfaction of needs and desires to an adequacy-based way of consuming, although still emphasizing the pleasure of consuming (Greene & Korkman, 2022).

There are several intriguing challenges to be faced in order to achieve low environmental impact consumption. The research shows that consumers are reluctant to lower their consumption, and that despite their well-meaning attitudes, they are unable to make low-impact choices for consumption (White & Habib, 2018,



p. 9). Even though consumer trends for environmentally sustainable consumption were strong at the beginning of the 2020s, consumer high desire for the consuming services and experiences remains (Greene & Korkman, 2022; Taylor & Lichtblau, 2022).

These contradictory consumer perspectives challenge the type of user-driven design approaches where the good of the customer is seen as the main point. Now the good of the planet should be a priority and customer desires are dealt with within the limits of the biosphere. In service design solutions, this often means introducing new habits and chores for the customer. This kind of service design questions the types of services and service customer we focus on. The main customer might be the planet and the sub-customers the service users of the business offerings.

The gap between consumers' environmentally positive values and attitudes and less than responsible choices and behavior is influenced by the various motivational consumer interests, the pressures of a busy everyday life, emotional and other irrational biases in decision-making, and the lack of necessary individual capabilities. In saturated markets with huge amounts of choice, information about corporate responsibility actions and responsible solutions is contradictory and confusing, and difficult to find and understand (Kuluttajaliitto, 2022; Kälviäinen, 2022, p. 145–201). In order to reduce their environmental impact, consumers need solutions that are interesting, easy to find and understand, are smoothly integrated into their daily lives, and offer suitable support and help in consumption transition and in the required habit changes (Kälviäinen, 2022, p. 209–211). Behavioral psychology explains this using the COM-B model, where the factors of capabilities, opportunities, and motivation all come together when a person is able to behave in a certain way (Figure 1).

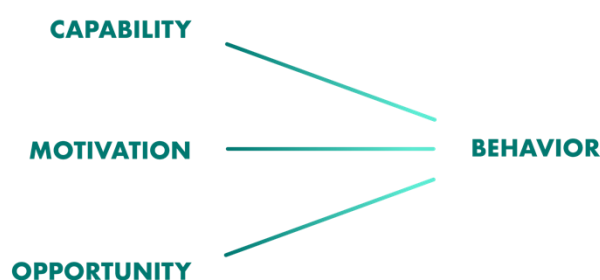


Figure 1. The COM-B model explains the factors that are required simultaneously to support behavior change (Figure: Applied from Michie et al., 2011).

In accordance with human-driven service design principles, customer research and co-design methods are also necessary in this service design situation to increase the



understanding of the factors affecting a customer's consumption choices and behavior, including the barriers preventing them from choosing environmentally responsible solutions. This provides businesses with insights for opportunities to design suitable, environmentally low impact service solutions that support customers in making environmentally responsible choices and in using them in a way that produces environmental benefits. Instead of searching for the most pleasurable way for customers to fulfill their needs, it is vital to identify factors that motivate change in the ways of fulfilling these needs using suitable behavioral tools to ideate how to communicate and promote environmentally responsible actions.

Surveying existing small-scale businesses

The current state and needs of regional small-scale businesses for environmental responsibility and customer orientation were scanned by interviewing 17 business representatives. In these regional examples, it proved challenging to achieve enough know-how, resources, and information to design, implement and maintain environmentally responsible activities. The whole issue of urgent environmental responsibility within the limits of the biosphere was considered too big to handle in the training sessions organized for the regional businesses following the interviews. The interviews revealed that there were doubts about the most reasonable or profitable solutions for each company in terms of environmental responsibility. From a corporate point of view, sustainable solutions that would improve competitiveness, the opportunity to stand out from competitors and better succeed in competitive markets were considered profitable and worthwhile. Related information about the handprint sustainability in the economic prognoses year 2022 has been that the development of customer-driven sustainability forecasts business success in the future (Taylor & Lichtblau, 2022).

According to the company representatives it was difficult to identify all the solutions that can be counted as environmentally responsible. If solutions had been identified, communication about them was weak, or non-existent. This came out in every one of the interviews with the regional businesses. Businesses were cautious in communicating about environmental actions since there was a doubt that small environmental acts are not significant enough. Other issues of environmental significance and communication value pointed to general measures, such as whether it is worthwhile to share that you use electricity that is produced using renewable methods. Social media channels were seen as a low-threshold way of communicating about environmental responsibility. Businesses were also afraid to communicate about environmental responsibility if there was a lack of sustainability information with subcontracted products or services. In the era of long production



chains, the primary production of the material and the related responsibility might be impossible to track. Communication about environmental responsibility was identified by the companies as one of the areas requiring development support.

The interviews revealed that some companies are afraid of greenwashing when communicating their environmental sustainability, so they prefer to avoid this communication all together. The marketing communication that highlights ecological benefits of various offerings has made consumers suspicious and eager to point out flaws in sustainability claims. The consistency of a company's activities and communication and its parallelism with their presumed ecological products seem to play a significant role in building credibility. Inconsistency suggests cheating, with an impact on credibility and a willingness to buy, and questions the reputation and trust in the company. In consumer information there are findings of doubts both about the motivation of companies to go green and about the extent to which their products really represent ecological benefits. (Gleim et al., 2013, p. 47–48; Kälviäinen, 2022, p. 137–139).

The idea of customer orientation was interpreted in a rather narrow way in the businesses studied. Several company representatives mentioned feedback surveys they conducted, or that feedback was received in customer encounters. There was a lack of customer studies providing extended customer understanding about the stages of the customer journey before and after the provision of the core service, and customers were not involved in the co-development of products or services.

In the business support projects for handprint development, the first training seminar dealt with customer orientation and how it can be utilized in the development of the businesses' environmentally responsible operations. Customer orientation was presented by consumer study experts and case examples, and it ended with practical development work together with the participating companies. The second seminar dealt with environmentally responsible service and product design. It introduced the participants with the means of reducing their consumption footprint, constructed suitable consumer journeys for this, and applied the tools for creating behavior change. The third seminar focused on environmental responsibility communication. The communication event introduced companies to how to communicate in an understandable, concrete, comparative, and transparent way and to avoid the pitfalls of greenwashing.

In the practice-based stages of the training, businesses were able to work with their own development target in a guided manner, using practical models and tools and gaining applied expertise (Figure 2). During this applied work, the material and tools for customer-orientated environmental sustainability design were tested and feedback on them was gathered.





Figure 2. Company representatives working with the systems-based canvases for consumption and production modelling (Picture: Enna Eloranta).

Loop canvases resulting from business analyses

In addition to qualitative business interviews, companies and organizations that provide customer-oriented and environmentally responsible solutions have been benchmarked by our business handprint developing projects. The benchmarks are used to analyze the business models and product and service solutions of relevant businesses, mainly in Finland. The projects have also benchmarked business models describing sustainable businesses. Since the benchmark analyses showed that there is still a lack of business model canvases suitable for SMEs based on customer-oriented environmental responsibility, the projects have used the benchmark data on existing businesses and business models to provide canvases for the initial analysis and development steps for these kinds of systemic solutions.

Using the benchmark data and analyses, a double loop canvas has been provided for businesses to use (Figure 3). It describes the actions of the company and the customer in parallel, and makes it easy for the company to see how environmental responsibility can be shifted from a business-centered solution to a customer-oriented one. On the right side, the model considers the customers and solution users, indicating the service moment possibilities of how the business offerings and



solutions can reduce the environmental impact of the customer. On the left, the environmental responsibility activities related to the company's production are considered and the influence can be pointed out in terms of how the customer-oriented environmentally responsible solution provides changes or new demands on the production side of the loop. The idea of the loops is to first consider the current situation and then look at the possibilities of the customer orientation in increasing the handprint of the business by lowering the environmental impact on the customer side of the activities. The last point is to see how the customer orientation changes production and how the environmental impact, or the footprint of the company, can be reduced further, together with the handprint increasing changes on customer side.

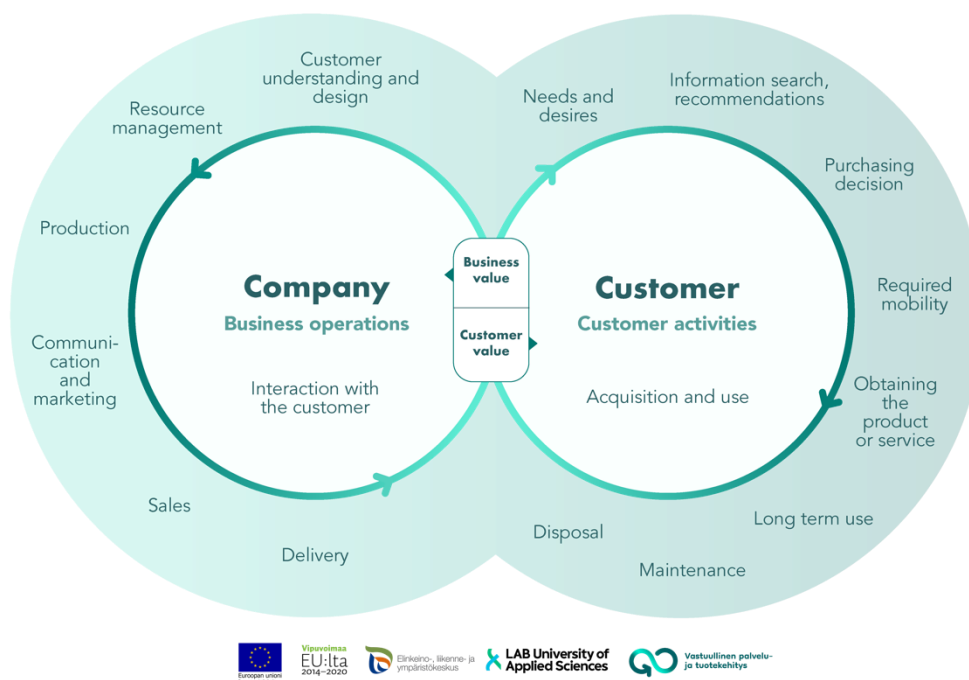


Figure 3. The double loop helps to understand the current state and opportunities of the company's customer-oriented environmental responsibility (Figure: The VPK project group and Enna Eloranta, 2022).

The double loop canvas helps the businesses to systemically model customer support for sustainable everyday consumption in their products, services, and solutions. Since in the regional small-scale interviews the businesses showed a lack of customer-orientation and extended customer understanding and difficulties in communication about environmental responsibility, the canvas-based modelling was applied to demonstrate to the businesses what service moments they could use in



their customer journeys to reduce the customers' environmental burden and what meaningful customer values they could thus communicate.

When the projects had carried out analyses of companies and mirrored them in a double loop, the need for a triple loop-type representation also emerged. This kind of canvas makes it possible to model the multi-level operations of co-working companies and find joint areas for development, as well as the content for communications. The triple loop can be used to model the activities and interactions of a production company that sells products through another company, representing a distribution channel (Figure 4).

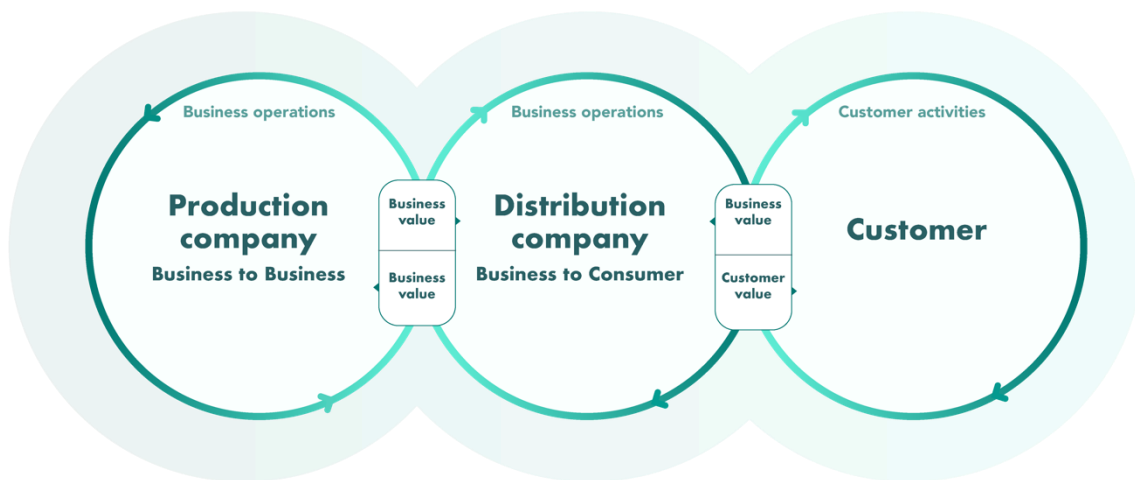


Figure 4. The triple loop is suitable for modelling the environmentally responsible operations and interaction of a production company, a retailer, and a customer, for example (Figure: The VPK project group and Enna Eloranta, 2022).

Another type of triple loop, shown in Figure 5, describes a business activity in which the customer provides services or products and the company distributes them to their customers who need them. In this case, the business platform serves as the interaction point between the producing and consuming customers. Such business models based on the use of a digital platform are becoming more common, as many online resale sites or flea markets operate according to this model.



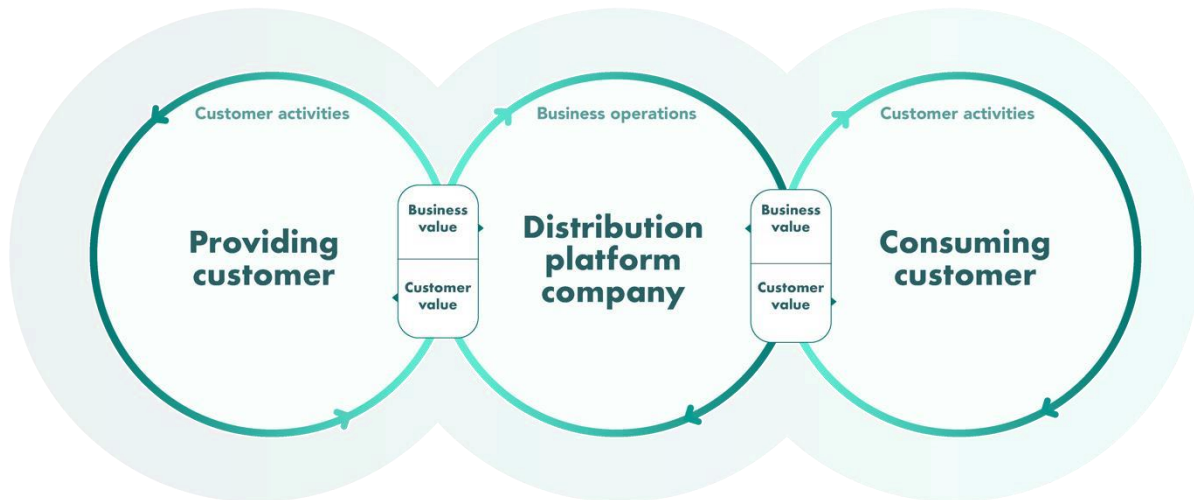


Figure 5. The triple loop is suitable for modelling the environmentally responsible operations and interactions of a customer producing services or products, the company that mediates them through a platform, and the consuming customer (Figure: The VPK project group and Enna Eloranta, 2022).

Many circular economy business models or other exemplary environmentally responsible business models represent businesses established in recent years with a starting point in customer-oriented responsibility. However, the large group of companies established before the growing requirements for sustainable consumption became apparent should also be able to transform into bearers of double responsibility and decrease not only their production carbon footprint, but also increase the carbon handprint that supports their customers' environmental responsibility.

Small-scale businesses seem to need sufficiently simple help to find a sensible way to take on the dual environmental sustainability responsibilities. According to the benchmark analyses made and in executed training sessions, the loop-based canvases seem to work well at concretizing the current situation by analyzing existing activities and resources, and demonstrating the meaningful transformation in the limits of the resources and realistic possibilities of small-scale businesses. The loops also help the businesses to change their perspective from a mere business-centered environmental sustainability to also include the customer value point of view. This also involves analyzing the most relevant value content on which it is possible to build credible and effective environmental responsibility communication.

The modelling performed in the benchmarking analyses and in training sessions has established that comprehensive modelling of environmental responsibility measures in business operations helps to find suitable development points and directions, as



well as customer value for communicating environmental responsibility. This is also possible for companies from the era of the traditional market economy with a business-centered starting point. Modelling the operating methods and means of an environmental double responsible business also provides a sound basis for designing and converting such modelling into an actual business model, in which the need for resources and a sufficient review of revenue streams are analyzed according to the envisioned responsible solutions.

Toward business handprint solutions

The combination of environmentally responsible possibilities for consumer behavior change, customer journeys for service-type offering creation, and psychology-based behavior change is a challenging one. It is especially challenging for small-scale businesses that seem to struggle with developing their business-centered environmentally sustainable responsibilities.

In the handprint solution projects, the initial loop analysis has been followed by a more specific design of the offerings and solutions that support customers to reduce their carbon footprint. The first tool for this has been to offer customer journeys as a system where advice on the possibilities of reducing the individual environmental burden can be designed. The collection of these low-impact consumption means for small-scale businesses has been selected from the most relevant ones presented in studies for general consumer advice on low environmental impact. There are collections of these in studies of consumer-based carbon emissions and as advice collections attached to carbon footprint calculators (Salo & Nissinen, 2017; Lettenmeyer et al., 2021).

Since high environmental impact consumers in developed countries are in general concerned with their environmental impacts but in practice are not capable of changing their consumption habits, the companies are also guided to conduct customer studies to clarify the needs of their customers and for the purpose of creating customer journeys that fit well with their customers' everyday actions with suitable pre-, during-, and post-service stages. The customer research should also reveal hindrances that deter consumers from implementing environmentally beneficial intentions and to spot opportunities of interest. In customer journeys and the related service moments and touchpoints, it is possible to integrate interventions to the solutions to both overcome the sustainability obstacles and utilize interests related to them when there is a sufficiently rich customer understanding (Kälviäinen, 2022, p. 6).



As a solution, a handprint-based customer journey should provide a sufficient service for the practical need the customer has. It should also help the customer to cross the gap and overcome any barriers between attitude and low-impact behavior. The purpose of the service is then not only to help do what is nice but to support doing the right thing for the planet. This might require new actions and leaving old habits behind. For this purpose, the COM-B factors should be covered to provide possibilities for required behaviors. The psychological interventions for behavior change can be implemented in the service moments and the touchpoint of the customer journey. Figure 6 presents how the COM-B factors can be integrated in the different stages of customer journey. The stage before the core service is crucial, since there the customer locates, gets motivated and is able to start the journey in the middle of everyday pressures.

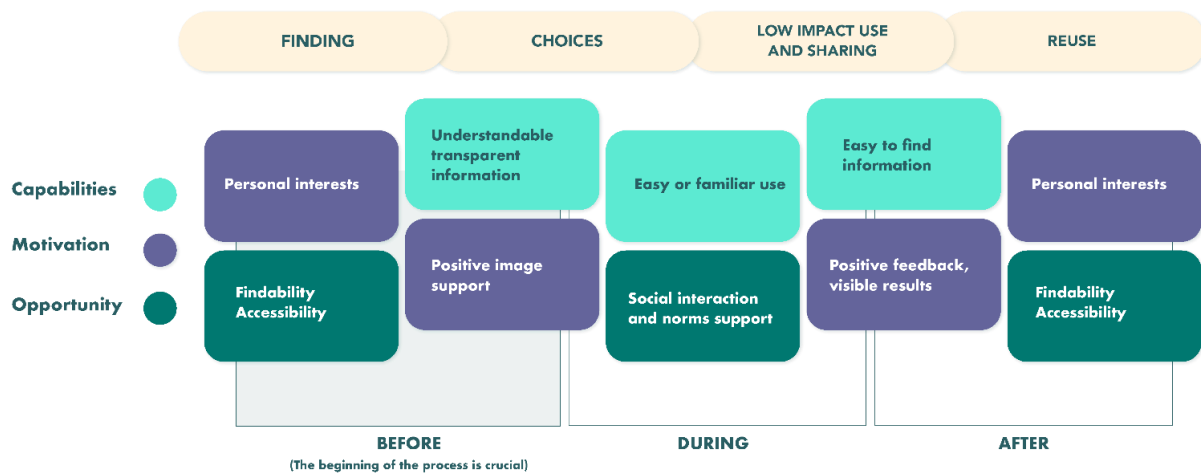


Figure 6. The customer journey has service moments and touchpoints where interventions overcoming sustainable consumption hindrances and supporting interest points can be located (Figure: Kälviäinen, 2022).

For making the process of creating the handprint solutions easy enough, a further set of tools for the different stages of the customer journey touchpoints has been collected. Suitable psychological behavior change means have been chosen by project experts to help small-scale businesses provide for supporting touchpoints and communication throughout the customer journey (Figure 7). The selection considers that the need to build behavior change support as a process was important enough to start the activity, while learning how to do it and forming a new habit of doing it in the future are also important. These stages can be linked together with the different stages of the customer journey (Kälviäinen, 2021).



Examples of the heuristics of behavior change

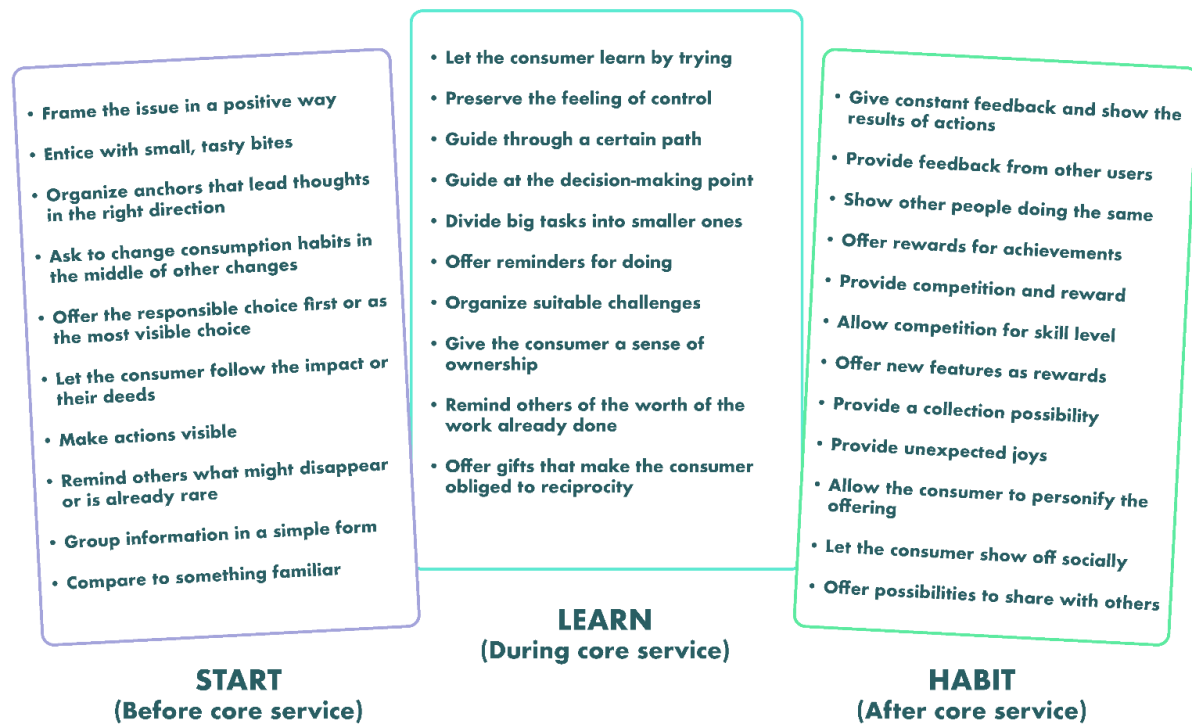


Figure 7. The mixture of tools for a low environmental impact solution includes both the customer journey umbrella for the service flow and the behavioral psychology means that support the pre-, during, and post-service stages (Figure: Kälviäinen, 2021).

Piloting the solutions

In the summer of 2023, the projects will launch a MOOC (Massive Open Online Course) for businesses to learn and design customer-orientated environmentally responsible solutions. Since it is difficult for small-scale businesses to allow lots of time to be used during office hours for further studies or business development, the MOOC format allows for learning independent of location and time, and businesses can continue to appropriate the materials and guidance created in the handprint solution projects through this solution. The purpose of the online course is to provide clear, easy-to-understand guidance in a business-oriented manner. The canvases and ideation materials should help to concretely analyze and ideate the possibilities of the business offerings from the perspective of customer-oriented environmental responsibility.

The needs of small-scale businesses in terms of the content, structure, and scope of the guidance and materials were considered through business interviews during



spring 2022. The result is that, in order to be usable, the material should be easy to obtain from a digital platform, and it should contain targeted information from experts in the field. It should use plain language and be open the important concepts. The businesses hoped for examples from their own business fields. Practical, easy-to-use tasks to apply on a company-by-company basis was hoped for. The drafting of the material and guidance has happened through a series of training sessions during spring and fall 2022, and this interaction with company representatives has allowed for co-design and feedback during the guidance and material creation.

The MOOC-format collection of the guidance and development tools will be tested together with another set of regional small-scale businesses during the spring and fall of 2023 to ensure a smooth and functional whole. Based on the test results, the further development of this virtual business support material will be carried out during fall 2023.

The challenges of supporting small-scale businesses in customer transition

It is hard enough for small-scale businesses to develop environmental responsibilities in a business-centered manner. The multiple pressures of increasing legislation and reporting responsibilities, the growth in sustainable investments with ESG (environmental, social, governance) requirements and the demands of the workforce for responsible business environments drive businesses to seek responsible ways of conducting their production activities. Small-scale businesses already suffer from a lack of capabilities and resources with these challenges.

In addition, the customer-orientated demands, and consumer desires to live in a sustainable way yet, in a contradictory way, still enjoying the pleasures of consumption may be too much for small-scale businesses to manage side by side with sustainable production demands. The suggestion in the development presented is to try to manage the double responsibilities through customer-orientation that supports existing businesses to check the relevance of their offerings in the changing consumption setting. Consumers are asked to make necessary changes in their consumption behaviors but have a hard time doing so. Businesses can support them in this.

The challenge of customer-orientation is in itself a problem. Many businesses still fail to realize even the basics of it, and now there is a further challenge in this because of the need to guide the customer to do something they in practice might even be partly reluctant or too lazy to do. The design for behavior change considers how to support the customer to make the change that they actually appreciate in the back of their



minds and in their values. This approach places the planet and the biosphere boundaries as customer number one.

The customer-oriented approach to environmentally responsible solutions offers companies opportunities not only for business responsibility but also for business success. In the support material presented here, the aim has been to support smallscale businesses to identify their own starting points and resources, and to take advantage of consumers' growing interest in environmentally responsible everyday life. This inevitably places company operations on a more environmentally sustainable basis, especially where there is a move to account for the net influence of businesses, and efforts to reduce carbon footprints can be supported by increasing handprint efforts. The presented double environmental responsibility transition moves both customers and businesses toward desirable change for the benefit of the planet.

Acknowledgments

Project information to be added after review.

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