



Understanding Consumer Attitudes Towards Sustainable Business Models—A Qualitative Study with Finnish Consumers

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Abstract

Sustainable business models have been presented in the literature as a way to gain stepwise improvements in environmental impact compared to just selling a product, and many companies have started experimenting with them. However, these models are not yet scaled up across sectors. One of the barriers is understanding how consumers perceive sustainable business models and how much they would be ready to pay products and services from sustainable offerings. To this extent, our study investigated the following research questions: How do consumers perceive the sustainability attributes of novel sustainable business models? How does this affect consumer willingness to pay (WTP) for the offering provided? This study uses a qualitative research approach, conducting online discussions among 44 Finnish consumers. Finland is in focus as it has a top ranking in sustainability country indexes. Through the study, it was found that consumers pay attention to sustainability of the products and services they consume. They are willing to use available information and assess this to make sustainable purchasing decisions. However, they lack trustworthy information and sometimes it is too time-consuming to find the data. When making purchasing decisions, consumers perceive certain positive environmental and social impacts. However, the environmental and social impact of the studied business models did not turn into consumer WTP especially when considering expensive products, or business models with a social impact only. Still, in general, over half of the participants are willing to pay more about responsible produced products.

Keywords Business model · Sustainable · Perceived value · Consumer attitudes · Willingness to pay · Consumers

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Introduction

The effects of our current “unsustainability crises” are clearly visible. Climate change is exacerbating, biodiversity is in decline, and we are trespassing several other planetary boundaries that are affecting life on Earth to the extent that this epoch has been dubbed “the Anthropocene”, where human activity is creating a disbalance in the Earth’s ecosystems [1, 2]. Significant changes will be needed to the way we produce and consume, and there is an important role for business to transform the dominant unsustainable business models [3, 4].

The field of sustainable business models has gained prominence in research and practice to address sustainability issues in a holistic way by understanding how to best propose a new sustainable offering to the customer and deliver, create, and capture value sustainably [5–7]. Sustainable business models, such as offering a product as a service, have the potential to lead to significant reductions in environmental impact, compared to just selling a product [8, 9]. Organisational sustainability consists of three components: the natural environment, society, and economic performance [10] that corresponds to the concept of the triple bottom line, balancing these three components [11–13]. Yet, the actual uptake and scaling of sustainable business models, in particular by large business, are still lagging behind [14] compared to the popularity of the topic in research (e.g. [15, 16]). Baldassarre and Calabretta have defined four categories for the implementation of the circular business models, including cultural, regulatory, economic, and technical barriers [5]. Velter et al. propose a process tool helping companies to engage with multi-stakeholder approach to innovate sustainable business models [17]. While the understanding of key barriers is growing, and, on the other hand, tools are emerging for sustainable business models [18], more work still needs to be done to achieve their full potential.

Sustainable business models include the following elements: sustainable value proposition (what value is delivered to the customer, society, and environment), value creation and delivery mechanisms (how this value is sustainably captured and delivered), and value capture systems (how money and other forms of value are captured by the organisation [6, 19]). Business model innovations often start with testing the value proposition in real life with customers [20, 21], before proceeding with the practicalities of the value creation and delivery aspects, and the financial aspects of the value capture mechanisms [22]. The core of any sustainable business model is a sustainable value proposition: a promise of the economic, environmental, and social benefits a company delivers to its customers and society through its offering [23]. According to a recent study [24], sustainable value proposed by companies does not necessarily materialise from the customer perspective. The attitudes of a customer towards a sustainable business model are therefore an essential starting point before any further experimentation. The attitude and perceptions of customers related to sustainable business models have been investigated for example in the circularity context (e.g. [25]); however, there is a lack of empirical examination of this topic.

The goal of this study is to gather an in-depth understanding of consumer attitudes towards new sustainable business models. First, how customers perceive the sustainability attributes of different sustainable business models, is studied. Novel business models are evaluated focusing on environmental or social sustainability with consumers. Second, consumer willingness to pay for sustainably produced products or services is studied. In former work, customer perception of certain offerings, in particular of new sustainable products, has been investigated (e.g. on products made out of ocean plastics [26] and on refurbished electronics [27]). In addition, various aspects of the practical implementation

of sustainable business models have been investigated, such as the role of digitalisation [28, 29].

In the remainder of the paper, we discuss the background on perceived value and willingness to pay (WTP), before focusing on the qualitative research method, results, and conclusions. This study is unique in nature because there is a lack of empirical work on how consumers perceive sustainable business models and whether they would be willing to pay for the offering provided within these new business models. The research questions in our study are as follows: How do consumers perceive the sustainability attributes of novel sustainable business models? How does this affect consumer WTP for the offering provided?

Background

Perceived Value on Sustainable Business Models

Lack of customer acceptance has been identified as one of the key barriers to sustainable business models and radical changes are required in consumption patterns [24]. Moreover, customer research is needed to understand which business models work for which customer groups, as analogously to conventional marketing approaches, customers would need to be approached in different ways to make the offerings attractive [26, 27]. This suggests that more insights on the financial aspects are needed here, complemented with a perspective on how consumers perceive the new business model.

Customer value has been researched for over three decades [30]. Customer value perceptions have been described as the customer's evaluation of benefits and sacrifices associated with a product or a service (e.g. [31, 32]). In the context of sustainability, companies' performance on environmental, social, and governance (ESG) issues affects consumer choice, with an emphasis on environmental and social indicators [33]. According to Laukkanen and Tura, customer-perceived value assists the design of dynamic sustainable value propositions to respond to market changes and builds an understanding of the expected sustainability impacts [24]. They propose that sustainable value propositions and customer-perceived value should be managed simultaneously to identify areas for environmental and social impacts and sustainable value creation. Aarikka-Stenroos et al. emphasised that the circular economy (CE) generates especially functional value for consumers through improved practices and operations in addition to the economic value that is supported indirectly by functional and symbolic dimensions (e.g. eased practices save money and costs or symbolic values generate more earnings) [34]. Based on the study evaluating different CE services, consumers receive practical, economic, and personal benefits from using these models [35]. The study highlighted that when deciding on renting or owning, the balance between the economic benefits and sacrifices is crucial. If buying is seen as economically favourable, it easily wins out over renting, since it is a more familiar way to act. With regard to some products, personal and emotional benefits tend to override other factors.

Rintamäki and Kirves found that different product categories (fashion vs. electronics) and shopping channels (offline vs. online shopping) affect customer value perceptions in addition to cultural background [36]. For example, among fashion shoppers, emotional value was highest and fashion offline shoppers reported more symbolic value than the other shoppers did. Functional value was highlighted by electronics shoppers, and electronic online shoppers especially often reported more economic value than fashion or electronic offline shoppers. They highlighted that customer value has many alternative interpretations,

so each company should choose the value that best serves its strategic goals when crafting customer value propositions and assessing success with them [36].

Based on the study focusing on recycled plastics, Polyportis et al. propose guidelines intended to highlight the value of products made from recycled plastics and improve consumer acceptance [37]. Even if consumers often have a positive image of products made from recycled plastics, they also have some concern related to them. These guidelines include actions increasing consumer trust towards environmental impact, especially via improved communication and visibility. Also, Vehmas et al. have emphasised the role of communication related to sustainable consumption [38].

Willingness to Pay for Sustainable Business Models

The purchase intentions of customers play a key role in implementing sustainable business models [25]. The financial aspects of sustainable business models have been investigated to a limited extent, but new studies are emerging. Studies include work on gamification to develop better business models considering financial aspects [39], emerging research in specific sectors like banking [40], food and preventing food waste [41], and white goods, including studies on the financial aspects of washing machine business models [42]. Recent studies have also investigated willingness to buy and pay. Emergent work found that consumers are willing to buy more sustainable products when they believe that they get the same quality and functionalities as when they buy a product made using more traditional processes [26]. This contrasts older studies which showed that the price of a product was more significant for consumers than its environmental impact [43]. Price, availability, performance, and quality of a product continue to play a significant role in consumers' intention to pay for sustainable products [44].

Previous studies have shown differences in consumers' WTP extra for more sustainable products. This seems to depend on product category and country. For example, the WTP premium for bio-based products is still significantly low even if consumers are well aware of sustainable offerings and indicate willingness to buy [45, 46]. This intention gap has been referred to as the attitude-behaviour gap (e.g. [47–49]). However, some other studies have found contrary results, such as [50]. Also, the product category of green premium seems to be in the interest of consumers, and they are willing to pay significantly more in this product category [51, 52].

Based on the study implemented by [26], for products made of recycled ocean plastic, the most important predictors for consumers' WTP include the following: environmental benefits, anticipated conscience (i.e. consumer's expectations regarding how the product will make him/her feel in an ethical sense), recognisability (i.e. the fact that a product is made of ocean plastic is reflected in the visual appearance of the product), and perceived safety. For example, according to Griskevicius et al., environmental consumption can serve as a positive social marker for a person and can improve an individual's image [53]. Quality expectations and purchase intention were generally lower for textile products than for durables and fast-moving consumer goods packages [26].

Brands play multiple roles in consumer decision-making [54]. For example, consumers often associate well-known brands with effective products [55] and infer product quality based on brand and pay premium prices for branded products, because brands are perceived to offer quality [56]. According to Hamzaoui-Essoussi and Linton, consumers' WTP varies with product category [57]. However, the WTP for sustainable business models is still little explored and needs more research.

Methods

The work by Geels proposed creating a practical sustainability framework when studying new socio-technical innovations in any regime shift, to define the most important dimensions of the related issue and help to specify the types of questions that should be asked of the participants in the transition area [58]. Here, the sustainability framework was developed for investigating consumer viewpoint towards new sustainable business models and consumer WTP for the offering provided within these business models [59]. This research utilises a qualitative design to explore consumers' attitudes towards sustainable business models.

The research method consisted of two online discussions for Finnish consumers. NVivo was used to analyse the results. The study was conducted in Finland, which is often seen as one of the more progressive countries in the world in terms of sustainability. In 2022, Finland was in top honours with Norway in the Country Sustainability Rankings [60]. The new sustainable development strategy of Finland extending from 2022 to 2030 focuses on areas such as sustainable consumption and lifestyle that require significant changes in society's mindset [61]. The sample and data collection and analysis are discussed in more detail next.

This research is part of the Actions for Sustainable Business Renewal (A4SBR) project. The A4SBR project (2021–2023) focused on the micro-foundations of company decision-making on measures affecting sustainability performance, ultimately offering means to design policy interventions that support the broad-based sustainability transition of the economy.

Data Sample

The targeted consumer groups were Finnish consumers aged 18–75, which would include a broad group of potential customers who would typically use products or services provided within the new sustainable business models. The study participants were recruited via Bilendi Oy (a survey recruitment provider operating in several EU countries). For qualitative research, the sampling was sufficient and representative considering gender, age, geography, and background. The total number of consumer participants was 44. Table 1 shows the demographics of our sample. All subjects gave their informed consent for inclusion before participating in the study.

Data Collection and Analysis

The Howspace online platform, developed by a Finnish company Humap Software, was used for data collection. The study data was collected in Finland for 1 week in November 2022 and facilitated by one researcher by assuring that the discussion threads remained active and that the received comments were logical and decorous. The 1-week research period allowed the participants to be more available and prepared. Due to the use of an online platform, participants were able to visit the platform as many times as they wished and respond to questions on the time suitable for them. The online platform made the participation more flexible and easier compared to onsite workshops for example.

The study contained both multiple-choice and open-ended questions, presented in the Appendix. Participants were able to see the answers of all the respondents after responding by themselves to the multiple-choice questions. And they were able to see each other's replies to open-ended questions to enable online discussion. The platform

Table 1 Demographic characteristics of the sample

Gender	
Female	52%
Male	48%
Age	
Range	18–75 years
Average	43,4 years
Living	
South	50%
West	32%
East	11%
North	7%
Household	
With partner or spouse	34%
Alone	32%
With partner or spouse and kid(s)	15%
With kid(s)	9%
With parents	7%
Work status	
Full-time job	41%
Pensioner	20%
Student	14%
Unemployed or laid-off	11%
Part-time job	9%
Home with kid(s)	2%
Entrepreneur	2%

was limited by the condition that the participants could not be forced to reply to the questions, even if it was recommended to respond to all the questions presented on the platform. Therefore, the sample size (N) value is lower in some of the results.

In the analysis of the online discussions, NVivo software developed for qualitative data analysis developed by QSR International was used [62]. All the results from the Howspace platform were downloaded to NVivo and the data was sorted and coded with the software using a directed content approach by one researcher. The categorisation was evaluated by another researcher. NVivo helped in identifying themes in the data and in the manual coding process. Coding the text involved categorising text segments with similar patterns [63] that further helped in the organisation of themes. In practice, the written answers received from the study participants were analysed question by question. Figure 1 presents an example categorisation of the responses in NVivo based on the answers received to the question “What do you think a sustainable company is like?” (question 1 in the Appendix). The researcher defined different viewpoints of the participants (Level 1 in Fig. 1) and manually categorised all the responses under these categories (Level 2 in Fig. 1). Based on the categorisation, the different viewpoints were easy to visualise and describe in written format in the results section.

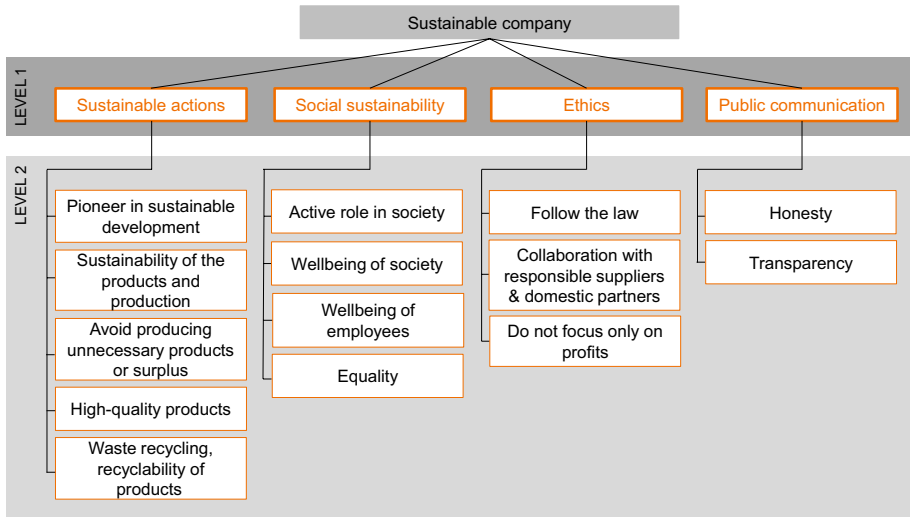


Fig. 1 Example of categorisation in NVivo

Phase 1: Perceived Value on Sustainable Business Models

In the first Phase, the sustainability attributes consumers value in companies' sustainable business models was clarified. Four open-ended questions (questions 1–4 in the [Appendix](#)) were presented to the participants to understand their viewpoint. In the sustainable business model evaluation, a two-Phase design was used.

Six novel sustainable business models were the focus of this study. Business models were chosen based on the work implemented by Antikainen and Järnefelt in the A4SBR project [64]. They used two MCSI's SRI (Socially Responsible Investing) indexes to choose the sustainable business models for their study. Here, the sustainable business models covering different sustainable business model archetypes [6] that were relevant for consumers were included. The business models were presented to consumers with a short description presented in Table 2. Consumers were asked to carefully read the story and answer the questions related to each of the business models. This part included both multiple-choice and open-ended questions (question 5 in the [Appendix](#)).

Phase 2: Consumer Willingness to Pay

In the second Phase, it was clarified how sustainably produced products or services affect consumers' WTP. Here, three different types of concrete pricing examples were presented to consumers, see Table 3. These examples are in business model archetype 4, which deliver functionality rather than ownership [6]. Here, the focus was on the sustainable business models that consumers might be aware of and have an opinion about them already. Consumers were asked to carefully read the examples and answer the questions related to each of them. This part included both multiple-choice and open-ended questions (question 6 in the [Appendix](#)).

Table 2 Description of business model examples presented to consumers

Sector	Name of the sustainable business model	Description of the business model	Sustainable business model archetype [6]
Mobility	Tesla, green transportation chain	Value proposition: reduced transportation of car parts and transportation-related emissions and reduced the risk of delivery disruptions. Improved local employment Value creation and delivery: optimised supply chains by localising suppliers Value capture: local chain saves costs and adds local value	1. Maximise material and energy efficiency 3. Substitute with renewables and natural processes
Retail/household appliances and electronics	Gigantti, environmental parameters	Value proposition: more information about the products enables more responsible and ecologically sustainable purchase decisions Value creation and delivery: environmental parameters for each product in its online store including the manufacturer's EcoVadis responsibility classification, third-party environmental approval, estimate of the availability of spare parts in years, energy labelling, country of manufacture, and the lifetime estimate of the product provided by the manufacturer Value capture: a sustainable and transparency model allows for the product to keep its value	5. Adopt a stewardship role

Table 2 (continued)

Sector	Name of the sustainable business model	Description of the business model	Sustainable business model archetype [6]
Fast-moving consumer goods/supermarket products	Unilever, recycling of plastics	<p>Value proposition: reduction of the amount of plastic used</p> <p>Value creation and delivery: use of reusable, recyclable, and compostable packaging materials and increase the use of recycled plastic. Help to collect and process more plastic packaging than sold</p> <p>Value capture: 25% of the plastic packaging is made from recycled plastic (PCR). Halve the use of primary plastic by reducing the absolute amount of plastic packaging by 100,000 tons. Financially this also saves</p>	2. Create value from “waste”
Pharmaceuticals	Novo Nordisk, pricing based on financial standing	<p>Value proposition: the differential pricing model enables medical care and medicines and supplies to those who need them the most</p> <p>Value creation and delivery: offering a reasonably priced service, including medical care and medicines and supplies</p> <p>Value capture: cross-subsidizing to increase medical care</p>	7. Re-purpose the business for society/environment
Hardware	Home Depot, education of employees	<p>Value proposition: better customer service for customers</p> <p>Value creation and delivery: Training employees, e.g. about the company’s technologies and supply chains, as well as improved customer service</p> <p>Value capture: societal value by sharing knowledge about the business and improving service</p>	5. Adopt a stewardship role

Table 2 (continued)

Sector	Name of the sustainable business model	Description of the business model	Sustainable business model archetype [6]
Entertainment	Disney, equality	<p>Value proposition: eradication of inequality in different ways</p> <p>Value creation and delivery: increase diversity in creative roles both in front of and behind the camera and implement development programmes (e.g. apprenticeship programme) to increase diversity at all levels of the organisation</p> <p>Value capture: social value created for society</p>	5. Adopt a stewardship role

Table 3 Description of business model examples presented to consumers to understand their WTP about sustainable products and services

Sector	Name of the example	Description presented to consumers
Whitegoods/household products	Washing machine and dryer	A washing machine costs 550 euros on average and a tumble dryer 750 euros (average market price). The company would offer the rental of the washing tower unit at a price of 25–30 euros/month (including transport and installation service). The price range depends on the length of the contract period
Clothing	Clothes as a service	In the clothes-as-a-service concept, the consumer is offered used clothes and accessories in good condition for temporary use. Products are available for women, men, young people, and children. Use of the service is based on membership. For example, a 30€ membership covers pants suitable for work, two shirts and accessories every month. Clothes can be fitted and viewed in the store, or you can order them from the online service at home. At the end of the usage period, the clothes can be easily returned in the same packaging in which they were delivered to your home or taken to the store
Food	Home delivery of food	Food online store delivers consumers' orders above 60€ home with a price of 4.90€. The company offers more ecologically sustainable transport, which practically means that the transport schedules have been changed so that transports from the same area have been collected and the transport is carried out by electric cars. The price of the more ecological transport option is 6.90€

Results

Phase 1: Perceived Value on Sustainable Business Models

Sustainability for Consumers

Through analysing the responses related to Phase 1, it was found that consumers have started to pay more attention to sustainability of the products and services they consume. First, they mentioned that they avoid purchasing products they do not need, and they try to use the products until the end of their life cycle. They for example mentioned that “In my opinion, sustainability is primarily about giving up the consumption hysteria and buying only what is needed”. This is especially the case during certain periods, such as “During the discount campaigns (e.g., Black Friday, Singles Day) you must keep cool not to rush to buy everything that is ‘cheap’”. Second, during shopping, they aim to choose domestic or local products and buy second-hand products when possible, and they are interested in sustainability of the products they purchase. For example, one participant mentioned that “I want to support domestic production, and local producers when possible”. Third, consumers also prefer recyclable products and products made of recycled materials.

Based on consumer viewpoints, responsible companies especially take care of sustainability of their products and production, and they are the forerunners in sustainable development. For example, participants mentioned that “responsible companies do not produce more products than needed” and “...they are innovative with unsold products”. Participants also pointed out that responsible companies pay attention to quality, durability, and recyclability of their products. Companies should also properly recycle all their waste materials. In addition to sustainable actions, consumers highlighted the social impact. Consumers feel that responsible companies have an active role in society, by improving employment situations and supporting the well-being of the community more broadly. They pay attention to the well-being of their employees and their working conditions and pay sufficient salaries. For example, one participant described a responsible company as “An appropriate salary is paid, professional skills are appreciated, and no low-cost labour is used”. Related to the working conditions, consumers felt that the company is responsible to provide suitable and safe working conditions, and they should pay attention to faults and change them. Responsible companies do not use child labour and they follow any collective agreements.

The participants pointed out ethics-related issues as well. Perhaps unsurprisingly, responsible companies should always operate in compliance with the law. Consumers highlighted the collaboration with responsible raw material providers and preferred domestic suppliers and production. One participant mentioned that “Company values extend to the company’s subcontracting chains and partners”. According to consumers, responsible companies do not cooperate with countries, companies, or individuals under sanctions. Responsible companies strive to do the right thing and not just pursue profit.

Consumers emphasised the role of communication as well. They expect honesty and transparency in company communication. According to one participant, “a responsible company communicates and openly discusses their own principles and goals towards the environment and nature”. They also pointed out that “responsible companies carry out the self-monitoring and reporting on their activities, review regularly their own operations and changes are made if necessary”.

Sustainable Shopping

Even if consumers highlight the role of companies in sustainable development, they agree that all the sustainable actions cannot be placed solely on the companies. Usually, this requires some preliminary work and spontaneity from consumers and means higher prices as well. One participant mentioned: “I would like to be able to set sustainability as primary criterion in all my purchasing decisions. Unfortunately, necessary information about the products and production is actually very difficult to find, and secondly, products that I feel confident with, cannot be bought due to their high price and I must choose something else”. Another participant emphasised that “I don’t have the time, energy or expertise to familiarize myself with the backgrounds of the products”. However, when making the purchasing decisions, consumers prefer durable, long-lasting products, for example “When buying new products, quality comes before price”. They are also looking for second-hand products and avoid shopping for single-use products.

In addition, consumers prefer domestic designed and produced products. For example, related to purchasing clothes, one participant mentioned that “Nowadays, I buy my new clothes mostly from Finnish small entrepreneurs whose business method is clearly known. I often receive quite unique products myself and at the same time I can support their work”. They avoid shopping products using child labour.

It was discussed with consumers, what kind of things they pay attention when purchasing new products. Here, the focus was on three different product categories: (1) household appliances and electronics, (2) clothes, and (3) food. The factors affecting consumers’ purchasing decisions are presented in Table 4. Due to different types of product categories, not all the factors are relevant for all the products. Price and price-quality ratio were mentioned in all the three categories. In the case of household appliances and electronics, consumers compare the prices before the purchasing decisions, for example “I do price comparisons in advance, because these are quite expensive products in general”. They are also interested in the experience of other users. When shopping clothes, price affects to purchasing decision and people are looking for discounts. However, “Price matters, but I don’t make a decision based on that alone”. The price of the food products has significantly increased, and the price of the food has become more important. Some of the participants mentioned that “Due to the price increase, we have had to compromise on our principles and needed to think about the price first”. Consumers are looking for discounts and products with oncoming best before date.

Consumers avoid purchasing unnecessary products. For example, in the case of household appliances and electronics, one participant highlighted that “I do not buy useless electrical appliances just because a new and ‘better’ variety has appeared on the market”. In the case of household appliances and electronics and clothes, consumers typically clarify if second-hand products are available. Similarly, consumers were preferring known brands, durability, and repairability of the products in these categories. For example, one participant talked about the relevance of brand when shopping household appliances and electronics that “I often buy products from the same brands if I have good experiences with them. It is easy to make a purchase decision for example for a washing machine whose previous version has worked flawlessly for us for 15 years”. In the case of clothing, one participant mentioned that “Based on some unfortunate news related to certain clothing brands, I have decided not to buy clothes from these stores anymore”. Consumers prefer long-lasting, high-quality materials and often choose classical and comfortable clothes that can be used in many places over several years. They

Table 4 The factors consumers pay attention to when shopping household appliances and electronics, clothes, and food (results have been received based on responses to open-ended question 3, [Appendix](#))

	Household appliances and electronics	Clothes	Food
All types			
Country of manufacture	x		x
Price	x	x	x
Size (of the product/package)	x	x	x
Sustainable production	x	x	x
Quality		x	x
Electronics related only			
Easiness to use	x		
Energy consumption	x		
User experience	x		
Water consumption	x		
Clothing related only			
Appearance and fit		x	
Materials used		x	
Usability		x	
Food related only			
Allergens			x
Avoid meat			x
Avoid processed food			x
Food in season			x
Healthiness			x
Taste			x
Non-food only (i.e. electronics and clothing)			
Brand	x	x	
Durability	x	x	
Availability of second-hand products	x	x	
Repairability	x	x	

prefer natural materials and clothes made from recycled fibre. Consumers avoid shopping fast fashion and one participant told that “I do not visit the stores at all selling fast fashion. Usually, the price is low, but the quality is poor”.

Sustainable production was important in all the product categories. Also, domestic production was considered sustainable. In the case of food, organic production was preferred, such as “I pay particular attention to the naturalness of the food and try to avoid unnecessary additives and preservatives”. In the case of clothes, consumers pointed out the well-being of the employees and avoided child labour. Consumers said that sustainability during the life cycle of the household appliances and electronics is essential, i.e. energy and water consumption. Naturally, the product size needs to fit the consumer requirements.

The factors affecting food purchasing are different from the other two categories. Consumers are looking for allergens, some of them avoid meat and processed food and prefer food in season. Also, healthiness, freshness, and taste are important factors for them. Some participants mentioned that they avoid purchasing fast food. They for instance mentioned:

“I usually make the food by myself, and I like to use fresh and clean ingredients”. In the case of food, one of the important discussion topics was food waste. Consumers avoid food waste. They avoid shopping the products they do not need. And they aim to consume all the purchased food. For example, one participant mentioned: “I prefer going to the store more often overthrowing away a lot of food”. Another said: “I plan cooking in advance and make lists so that there is no waste”.

When making responsible purchasing decisions, consumers emphasise the perceived environmental, ecological, and social impact and value. Environmental benefit was highlighted the most, and for example, one of the participants mentioned that “I emphasize environmental sustainability more than social impact”. Another told that “I think about the environment and the future of children”. According to a consumer’s experience “Often, a responsible choice is also a financially viable decision”. In addition, consumers mentioned the benefits of social impacts such as “Buying responsible products and solutions makes me feel good”. One of the participants mentioned that “Social effectiveness goes beyond the environment”. However, some participants said that the social impact is not remarkable for them.

Phase 2: Consumer Willingness to Pay

In Phase 2, concrete business model examples were presented to consumers and evaluated by them. Consumers’ evaluation of the environmental/social impact of the business models and their effect on their purchasing decisions has been presented in Table 5.

Through analysing the responses related to Phase 2, it was found that in general, sustainable business models clearly had a positive environmental impact from the consumer viewpoint (Tesla, green transportation chain; Gigantti, environmental parameters; Unilever, recycling of plastics). In the case of Tesla, consumers highlighted the improved security of supply and increased local employment situation. They also liked the decreased need for transportation and reduced pollution. However, the green transportation chain did not have an effect on purchasing decisions; for two-thirds of participants, there was no effect. Many of them felt this is greenwashing and some participants mentioned Tesla is only looking for lower transportation costs. In the cases of Gigantti and Unilever, the environmental parameters and recycling of plastics had an effect on purchasing decisions. According to consumers, available environmental parameters provide more knowledge about the products, make it easier to make sustainable purchasing decisions, and improve the transparency. They also felt that this is improving the brand of Gigantti. Sixty-two percent of the participants mentioned that this would positively affect their purchasing decision. However, some consumers thought this was greenwashing, and they were a bit concerned about the reliability of the parameters. Also, after providing all this information, the evaluation of the value of these sustainability attributes is up to the consumer. Consumers liked the business model of Unilever a lot, especially due concrete figures presented, and felt that Unilever is a forerunner in this area. They liked the idea of avoiding unnecessary packaging, decreasing the use of plastics, and collecting plastic waste. Seventy-three percent of the participants mentioned that this would positively affect their purchasing decision. However, consumers still emphasised that this change is not visible in the market.

In the case of social business models, most of the consumers felt that these models have a positive social impact (Novo Nordisk, pricing based on financial standing; Home Depot, education of employees; Disney, equality). However, in all the cases, these actions did not have effect on purchasing decisions for most of the consumers. In the case of Novo

Table 5 Consumers' evaluation of the environmental/social impact of the business models and the effect on their purchasing decisions. (asterisk (*), smaller number of responses due to the challenges on the platform) (results have been received based on responses to multiple-choice questions 5, [Appendix](#))

Business model example	Environmental impact	Social impact	Effect on WTP
Tesla, green transportation chain	93% yes /3% no (N = 42)	n/a	41% yes/ 59% no (N = 41)
Gigantti, environmental parameters	82% yes /18% no (N = 39)	n/a	62% yes /38% no (N = 39)
Unilever, recycling of plastics	100% yes /0% no (N = 36)	n/a	73% yes /27% no (N = 37)
Novo Nordisk, pricing based on financial standing	n/a	65% yes / 35% no (N = 17*)	42% yes/ 56% no (N = 38)
Home Depot, education of employees	n/a	71% yes / 29% no (N = 17*)	43% yes/ 57% no (N = 37)
Disney, equality	n/a	76% yes / 24% no (N = 17*)	21% yes/ 79% no (N = 38)

Data in bold emphasis indicate the most common viewpoints among consumers

Nordisk, consumers really liked the idea that the ability to pay has been considered and that the medical care and medicines and supplies would be available for all the people. Still, the participants felt that this example was a bit challenging to understand and consumers did not know how it would work in practice. Some of them thought that this might be only an action to improve the company's brand. In addition, they saw potential for malpractices. Consumers saw the business case of Home Depot mainly positively as well. It is concretising company values to employees that will improve the customer service and company results. Still, it was commented that this type of action is not visible for customers and does not affect purchasing decisions. In the case of Disney, their work towards equality was seen as a responsible action. Consumers feel that the equality is a very important topic and see it valuable that a huge, recognised company like Disney is a forerunner in this. However, some consumers felt that Disney is only trying to improve their brand after negative news.

Factors Affecting Consumer Willingness to Pay for Sustainable Offering

In general, most of the consumers are willing to pay more about responsible produced products (63%, $N=40$). One of the participants told that "I can pay a little more if the product is also of better quality and more durable". Some of them highlighted the importance of domestic production. Consumers who were willing to pay more had different environmental, economic, and social reasons behind this. One participant highlighted that "By paying a little extra, I can even influence the state of the environment in some way". Consumers were also willing to support the producers producing responsible products and understood that the production costs might have been higher. They emphasised that they are feeling good when buying responsible products. Responsible production supports the employees and the whole society.

Consumers who were not willing to pay more about responsible products were explaining that it is by increased prices and that they could not afford to pay more. One participant told that "I would like to support sustainability and buy, for example, organic food. At the moment, the prices are so high that I just cannot pay more". Some of the participants also gave the mistrust towards responsible productions as a reason not to pay more. For example, "Sometimes it is difficult to know whether sustainability is just mentioned to increase the sales".

Pricing Examples

An overview of the outcomes of the concrete pricing examples evaluation done by consumers is presented in Table 6.

The first example was about "renting a washing machine and dryer". One-fourth of consumers were willing to rent the washing machine and dryer at the given price (24%, $N=41$). They felt that renting the home appliances would not have an impact on the environment (71%, $N=41$), because "I do not believe this would decrease the environmental impact, because I would use the appliance on the same way, even if it is owned by me or rented". The main reasons were as follows: the high price compared to owning a machine during the product lifecycle, there is no perceived environmental advantage, it is not a suitable solution/no need for the user, and some wanted to just own their appliances. Those who did not see the environmental impact pointed out that the devices would probably not be durable in renting use, it would not be responsible to use the appliance only during a short period, and the transportation requirements. One participant pointed out that

Table 6 Consumer WTP and reasons behind it (results have been received based on responses to multiple-choice and open-ended questions 6, Appendix)

Business model	WTP for service (%)	Reasons why to pay	Reasons why <i>not</i> to pay
Washing machine and dryer	24%	<ul style="list-style-type: none"> • Can be returned when no need anymore • Convenience • Energy efficiency • Environmental benefits • Services included (home delivery, installation, recycling) • Low price, monthly fee • Possible several users for the same device 	<ul style="list-style-type: none"> • Expensive • Long-lasting appliances • No need • No environmental benefits • Not a suitable solution for different families • Short use period • Willing to own
Clothes as a service	10%	<ul style="list-style-type: none"> • Fit • Quality • Reasonable return options 	<ul style="list-style-type: none"> • Expensive • Hygiene of the clothes • No clothes regarding my taste • No need, not interested • No environmental benefits • Prefer new clothes • Seldom need for new clothes • Too complicated • Using flea market • Willing to own
Home delivery of food	37%	<ul style="list-style-type: none"> • Environmental benefits • Reasonable price, small increase in costs • Transparency • Understandable reason 	<ul style="list-style-type: none"> • Expensive, high prices anyhow • No need, not available in rural areas • Not clear who will benefit

“If/when the lifecycle of the appliances is longer than the contract period, they will be replaced with the new ones even if they are still in good condition”. In addition, consumers were not willing to rent used appliances. Consumers having positive viewpoints towards renting household appliances pointed out the convenience including home delivery and installation services and mentioned that this solution would decrease purchasing of useless devices, decrease energy and water consumption due to the newer appliances in use, and maintenance services would be beneficial for the users. In addition, it was positive that the service provider would take care of recycling of the appliances at the end. The potential use case for the renting service could be during a temporary need for appliances, for example when living temporarily in another city or during moving.

The second pricing example was about “clothes as a service”. Most of the consumers were not willing to have their everyday clothes as a service (90%, $N=41$). They emphasised these clothes would have a shorter lifecycle than the ones owned by consumers, and more washing and maintenance would be needed. For example, one participant pointed out that “I wear the same clothes as long as they are usable”. They were also wondering about the availability of different kinds and sizes of clothes. In addition, they were concerned about the price and hygiene of the rented clothes. However, half of the participants felt that clothes as a service model would have a positive impact on the environment (53%, $N=40$). Consumers who were more positive towards the clothes as a service model mentioned that this would decrease impulse purchase, the number of new clothes needed, and textile waste. One participant highlighted that “This could reduce the amount of clothes production if implemented on a large scale”. Also recycling of clothes would be improved. The clothes consumers would more probably be willing to rent include children’s clothes, evening dresses and suits, and work clothes in addition to accessories.

The third pricing example was about “ecological home delivery of food”. About half of the participating consumers ($N=41$) never order food from an online store, 27% a couple of times per year, 12% one or two times per month, and 7% weekly. Most of the consumers were not willing to pay more for a more ecologically sustainable transport option (63%, $N=40$). There were two main reasons behind these. They do not have any need for food home deliveries, or they felt that the prices are too high. In addition, in rural areas of Finland, home deliveries are not available. Those who were willing to pay more for sustainable home delivery of food preferred the more environmentally friendly solution. However, in general, consumers thought that this kind of activity could still have a positive effect on the environment (85%, $N=39$). They also felt that the price increase was quite small. This would mean less driving and less pollution, in addition to decreased need for one’s own car. For example, one participant pointed out that “In the case this model would become more popular, the use of cars and traffic jams would decrease”.

Discussion and Conclusions

Sustainable business models have been presented as a significant option to decrease the effect of our production and consumption and to restrain the climate change and other environmental crises. These models have gained prominence in research and practice to address sustainability issues in a holistic way by understanding how to best propose a new sustainable offering to the customer and deliver, create, and capture value sustainably [5]. However, these models are not yet fully scaled up across sectors. Lack of customer acceptance

has been identified as one of the key barriers to sustainable business models and radical changes are required in consumption patterns [65].

In this study, we aimed to understand how consumers perceive the sustainability attributes of novel sustainable business models (Phase 1) and how this affects consumer WTP for the offering provided within these new sustainable business models (Phase 2).

Perceived Value on Sustainable Business Models

The first research question was as follows: How do consumers perceive the sustainability attributes of novel sustainable business models? Based on our results received from Phase 1, consumers nowadays pay more attention to sustainability of the products and services they consume. They, for example, avoid purchasing unnecessary products, try to use the products until the end of their life cycle, and when shopping, prefer domestic or local products and long-lasting high-quality products and buy second-hand products when possible. In addition, consumers also prefer recyclable products and products made of recycled materials. However, they are expecting the same quality and functionalities compared to when they buy a product made using more traditional processes [26]. The study implemented in 2009 showed that the price of the product is more significant for consumers than its environmental impact [43]. We assume that, during the past few years, consumers' mindset has changed, e.g. due to the Covid-19 pandemic and the increasing amount of news related to natural crises and climate change. According to Komonen and Seisto, exceptional situations during the Covid-19 pandemic have led consumers to observe and re-evaluate their former thinking and behaviours and affected, e.g. their consumption [66]. These crises are not something we can easily dismiss anymore because they are happening far away. They have become part of our lives.

In addition to changes in consumers' own behaviour, consumers are expecting actions from companies as well, similar to [45]. They are expecting both environmental and social responsibility from the companies and their value chains. For consumers, sustainable shopping requires some preliminary work and spontaneity. However, a lack of trustworthy information is a challenge. Searching for useful information to support decision-making is sometimes too time-consuming and challenging for them. Consumers emphasised the role of communication. They expect honesty and transparency in company communication, similar to [38]. The factors affecting consumers' purchasing decisions vary by product category: household appliances and electronics, clothes, and food. This needs to be taken into consideration when information is provided to the consumers.

The core of any sustainable business model is a sustainable value proposition: a promise of the economic, environmental, and social benefits a company delivers to its customers and society through its offering [23]. When making responsible purchasing decisions, consumers perceive environmental and social value. In this study, the environmental benefit was highlighted the most. The sustainable business model examples of Tesla, Gigantti, and Unilever clearly presented perceived environmental impact for consumers. Like [36], product category affected consumer value perception. The social impact shared consumer opinions: for some of them, social impact was even higher than environmental impact, and for some, it is not important for them. In the case of the sustainable business model examples (Novo Nordisk, Home Depot, and Disney), about two-thirds felt the models had a social impact. However, the environmental and social impact of these business models did not turn into consumer WTP especially when considering expensive products such as Tesla or business models having social impact only. Even if consumers prioritise environmental

impact, there are other issues that affect more on purchasing decision related to cars. In the case of cheaper product categories such as electronics or food, it is easier to take the environmental aspects into account. In the case of social business models, these actions did not have effects on purchasing decision for most of the consumers. The main reason was the lack of concrete information, and it was mainly seen as a strategy to try and improve the company's reputation or brand. In addition, the use of sustainable business models by large business to date is still limited [14]. Moreover, customer research related to them is lacking to make the offerings attractive [26, 27].

Consumer Willingness to Pay

The second research question was as follows: How do sustainability attributes of sustainable business models affect consumer WTP for the offering provided? In the Phase 2, three different pricing examples were illustrated for consumers and their WTP was studied. Price, availability, performance, and quality of a product play a significant role in consumers' intention to pay for sustainable products [44]. Based on our results received from Phase 2, most of the consumers are willing to pay more for responsible produced products, especially if they are high quality and durable. That is in line with previous studies (e.g. [45, 46, 57]). However, based on these studies, product category and country of the consumer affect these viewpoints, and the WTP premium for bio-based products is still significantly low even if consumers are aware of sustainable offerings and indicate willingness to buy. This intention gap has been referred to as the attitude-behaviour gap (e.g. [47–49]). In this study, the product/service category affected consumers' viewpoint. They were the most willing to pay more about sustainable home deliveries of food compared to having clothes as a service. However, there were different reasons for these. Due to increased prices in general, consumers' WTP was more on, rather, low level. In addition, they emphasized their concern about the lack of trustable information.

Limitations

The study is not without limitations. Even if the qualitative data of 44 respondents was socio-demographically balanced considering gender, age, geography, and background, a larger sample would have allowed for a more detailed examination of various sub-groups in the population, making a quantitative validation of the findings a potential future research trajectory. In addition, this study was implemented in Finland that is seen as one of the more progressive countries in the world in terms of sustainability. That might have affected the results. The results might be different in different parts of Europe and especially worldwide.

Appendix. Questions in the online discussions

1. What does sustainability mean to you? What do you think a sustainable company is like?
2. What does sustainability mean to you when making a purchase decision?
3. What kind of things do you pay attention to when buying new goods? (household appliances and electronics/clothes/food)
4. When you make purchasing decisions, what kind of value does buying sustainable products and solutions bring to you? Are the values related to, for example, one's own good

mood or social status? Which do you emphasize more, social impact or environmental sustainability?

5. Concrete business model examples (Tesla, green transportation chain; Gigantti, environmental parameters; Unilever, recycling of plastics; Novo Nordisk, pricing based on financial standing; Home Depot, education of employees; Disney, equality) and evaluation of them, with questions such as

- Do you think this kind of activity has an impact on the environment/social impact? (Yes/No)
- Does this type of activity have an effect when you make a purchasing decision? (Yes/No)
- What kind of thoughts does the example evoke in you?

6. Willingness to pay

- In general, would you be willing to pay more about responsible produced products?
- Concrete pricing examples and evaluation of them
 - Renting washing machine and dryer.

Would you be willing to rent the washing machine and dryer at this price? (Yes/No) Why/why not?

In your opinion, does this kind of activity have an effect on the environment? (Yes/No) Please, justify your answer.

What household appliances would you be willing to rent?

What kind of things would you pay special attention to when renting home appliances?

- Clothes as a service.

Would you be interested in getting your everyday clothes as a service at this price? (Yes / No) Why/why not?

In your opinion, does this kind of activity have an effect on the environment? (Yes/No) Please, justify your answer.

What clothes would you be willing to rent?

What kind of things would you pay special attention to when purchasing a clothing service?

- Ecological home delivery of food.

Would you be willing to pay more for a more ecologically sustainable transport option? (Yes/No) Why/why not?

In your opinion, does this kind of activity have a social effect? (Yes/No) Please, justify your answer.

Do you order food from an online store? (Often, Rarely, Never)

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Data Availability The raw data is not openly available due to privacy issues.

Declarations

Ethics Approval and Consent to Participate Consumers were recruited via a recruitment company Bilendi Oy. The participants accepted the privacy notice before participating in the survey.

Consent for Publication The A4SBR consortium has been informed about the publication and it has been accepted.

Competing Interests The authors declare no competing interests.

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