mistra future fashion

report on geographic differences in acceptance of alternative business models

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summary

The current way of producing and selling clothing is vastly unsustainable and needs to be reconstructed to better adhere to environmental boundaries. While the linear (cradle-to-grave), and particularly fast-fashion, business models dominate todays clothing market, alternative business models with a stronger social and environmental focus are emerging. In the present report, we investigate consumers' acceptance and intention to use eight different alternative business models within four Western countries (Germany, Poland, Sweden, and United States). In addition to assessing country differences in consumers' previous use and intention to use, we investigate how human values and socio-demographic factors influence consumers' acceptance of the alternative business models.

Results of our analyses, which include a total of 4049 consumers, reveal that the majority of consumers across the four countries have not used the alternative business models before, except for online reselling platforms and traditional repair services. Traditional repair services are most often used with 65.3% followed by online reselling platforms with 41.1%. All other business models are used by less than 20% of the consumers across all countries. Among the least used business models are clothing libraries with 4.7% and fashion leasing with 3.8%

The results also show that consumers are on average not very likely to use any of the alternative business models in the future (except online reselling platforms and traditional repair services). But importantly, there is significant variation across business models, countries, and consumer profiles. For instance, females and younger consumers are on average more likely to report having both used and an intention to use the alternative business models. Consumers who strongly endorse self-transcendence values (i.e., a motivation to transcend selfish concerns and connect with others) are also much more likely to have used or report an intention to use the alternative business models in the future. But surprisingly, consumers with strong self-enhancement values (i.e., a motivation to promote self-interest) are also likely to use a number of the business models in the future.

Important to consider is the limited awareness of most of the alternative business models, which may explain the low acceptance of the business models. Therefore, businesses with one of the studied business models should emphasize awareness creating campaigns in order to reach broader reaching consumer segments and to educate them on the social and/or environmental benefits of their business model.

More detailed analyses and discussions of differences across business models, countries, and consumer profiles as well as their implications are provided in the report.

content

1. introduction

The dominant business model in the clothing industry takes a linear approach to clothing production and consumption, wherein clothing products have a short life span, few changes of ownership, and limited or no end-of-life material recovery. A sub-concept of this broadly defined business model is "fast fashion", which has been adopted by a significant share of clothing companies and popularized among large consumer segments. Fast fashion is a supply chain model designed to respond quickly to developing fashion trends by continuously updating the assortment of clothing available in stores (Byun and Sternquist, 2011). With such rapidly changing fashion trends and assortments, the practical service life of clothes (i.e., how long it is worn) has significantly shortened, not due to the clothes technical service life (i.e., how long it can functionally be worn) but rather due to a reduction in its symbolic value making it unwanted (Zamani et al., 2017). For instance, shifting fashion trends can decrease the perceived value of a garment if it no longer corresponds to the new trend. Consumers are, as a result, not motivated to purchase new clothing because their existing clothes are no longer functional, but rather to acquire clothes that better adhere to the new trend.

The linear, and in particular the fast fashion, business model has profound implications for the environmental impact of clothing products. The production of clothing is generally renowned for being highly resource intensive through an intensive use of energy, water, and chemicals with associated consequences for ecosystems, water and air quality, and carbon dioxide emissions (Choudhury, 2014). High purchasing rates of clothes among consumers therefore come with an extensive use of resources and a significant environmental impact. Roos and colleagues (2017) recommended, based on life cycle assessments (LCA) of clothing products, that increasing the longevity and use of clothes can be an effective way to lower the environmental impact of clothing (a recommendation expressly embraced by the slow fashion movement). Advocating extended use of existing clothes appears, however, largely incompatible with many clothing companies' current business model, which demands ever-increasing sales and material inputs. But not all clothing companies are bound by the fast fashion business model and recently several alternative business models have either emerged or re-emerged to address the social and environmental challenges of the clothing industry. The nature of these alternative business models varies considerably with some representing a clear break with the conventional approach to clothing acquisition, whereas others are more compatible with existing practices.

'the purpose of this study is to explore consumers acceptance of alternative business models and their interest in using them in the future'

A central criterion for the success of alternative business models is the acceptance and use by consumers. How consumers respond to the alternative business models has, however, only received limited attention in the scientific literature. The purpose of this report is therefore to explore consumers acceptance of alternative business models and their interest in using them in the future. We also explore how personal values and socio-demographic factors influence consumers' acceptance and use of alternative business models. We investigate consumers' acceptance and use through a questionnaire distributed in four Western countries (Germany, Poland, Sweden, and United States). The international dimension allows for an interesting examination of country differences in consumer acceptance across four major, yet heterogenous clothing markets. The study provides novel insights into consumers' current support for alternative business models and the psychological underpinnings of supportive and unsupportive consumers.

2. background

Nearly 40 years ago, Winakor (1969) portrayed clothing acquisition as including purchasing secondhand clothes, receiving hand-me-down clothes, repairing and repurposing clothes, and exchanging unwanted clothes. Many of these activities were since largely repressed by the emergence of global supply chains, which made clothing increasingly affordable. With new clothes being cheaply available, there was little need for receiving improperly fitting hand-me-down clothes or spending hours repairing a holed pair of jeans.

This is still true today, but a rising number of consumers are questioning the legitimacy of producing 15€ jeans and its impact for production workers and the environment. Similar considerations are being voiced internally in the clothing industry and alternative ways of producing and selling clothing have surfaced as a result thereof. For example, collaborative consumption initiatives have gained significant traction in recent years by offering platforms for consumers to share and coordinate the acquisition of clothing (e.g., Iran & Schrader, 2017). Collaborative consumption is defined as "people coordinating the acquisition and distribution of a resource for a fee or other compensation" (Belk, 2014), and includes activities such as renting, trading, swapping, and borrowing of goods (Botsman & Rogers, 2010; Piscicelli et al., 2015). The boundaries of the collaborative consumption phenomenon extend well-beyond the clothing domain, but several noteworthy examples have surfaced in this domain including clothing libraries and fashion leasing. Other burgeoning initiatives have sought to re-popularize repair services either through advocating the more traditional versions (e.g., tailors) or by offering in-store repair of clothes. Following this growth in alternative business models, consumers now have a multitude of opportunities for acquiring clothing in alternative ways that take a lesser toll on the environment.

2.1. design of study

This report specifically centers around eight alternative business models identified in collaboration with industry partners of the Mistra Future Fashion project, namely: clothing libraries, fashion rental, fashion leasing, swapping markets, online reselling platforms, incentivized take back services, traditional repair services, and repair services in-store. But before presenting the nature of these, we need to make some demarcations regarding the focus of the report. First, we define a business model as "the rationale of how an organization creates, delivers, and captures value" (Osterwalder and Pigneur, 2010, p. 14).

Second, we strictly focus on the specific aspects of the business models that relate to consumers and their engagement. We recognize the many important initiatives that can be taken in earlier phases of the supply chain to reduce the environmental impact and better the social responsibility of clothing consumption (e.g., only relying on renewable energy for production, reducing chemical use, or improving working conditions), but our focus is only on the acquisition and discarding phases. Third, the potential environmental benefits of either of these eight business models should be critically assessed to ensure that they in fact represent environmentally friendly alternatives. We are aware of such ongoing scientific research, though further elaboration is beyond the scope of this report and we instead refer to other publications for detailed discussions (e.g., Roos et al., 2016; Zamani et al., 2017).

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3. alternative business models

The eight identified alternative business models differ in a number of ways. Clothing libraries, fashion rental, and fashion leasing reinterpret clothing acquisition by challenging the notion of ownership and access. Swapping markets represent the genuine spirit of collaborative consumption without any financial transactions (though with certain exceptions), whereas online reselling platforms facilitate selling unwanted clothes and offer easy access to secondhand clothing across geographical boundaries. Incentivized take back systems allow consumers to donate their unwanted clothes to ensure their extended life either through being resold or recycled. Traditional and in-store repair services similarly extend the life of clothing but without a change in ownership (or caretaker).

Profound differences likewise exist between the alternative business models in terms of their availability and penetration in the clothing market with some being predominantly an urban phenomenon with a relative small customer base (e.g., clothing libraries), while others are online-based with millions of customers (e.g., online reselling platforms such as eBay). Below, we provide a more detailed description of each business model.

clothing libraries: Clothing libraries function in the same manner as traditional libraries where clothing items are borrowed for a limited time period and then returned to the library. Different setups exist between clothing libraries with some having no membership fees whereas others charge a (usually small) fee (Pedersen & Netter, 2015). Clothing libraries are capable of maintaining the same speed of clothing acquisition as 'fast fashion', as each library user can update his or her wardrobe on a regular basis. However, clothing libraries can simultaneously help extend the practical life of clothing items under the assumption that it will be worn more frequently and for a longer period than would be the case with conventional clothing consumption (Zamani et al., 2017). This way clothing libraries might reduce the production of new clothing and the accompanying environmental impacts. Despite its potential, clothing libraries remain a small-scale phenomenon struggling to reach the mainstream clothing market in large part due to limited financial capital and human resources (Pedersen & Netter, 2015).

fashion rental and fashion leasing: Fashion rental and fashion leasing appear synonymous, and despite certain similarities, they are distinct in both content and historical presence. Fashion rental refers to short-term rental of clothing and commonly used for special occasions, such as renting a tuxedo for a wedding or a costume for a carnival. Fashion rental has been available for decades in and outside of larger cities. Fashion leasing, by contrast, is a comparatively new business model, where consumers can purchase the use of clothing items, but the leasing company retains ownership. Leasing models are still relatively rare in the clothing industry, but one large-scale example is Mud Jeans Company who leases jeans to consumers. This involves leasing jeans for a pre-defined period, where after consumers return the products to the company so the materials can be recovered and recycled (Hvass, 2015). Such a business model incentivizes companies to design long lasting and durable products as the responsibility of disposal remains on the producer or the service company throughout the products' practical life (see Agrawal et al., 2012, for analysis of the environmental friendliness of leasing).

swapping markets: Swapping markets facilitate the exchange of clothing usually without any monetary transactions, although some initiatives charge a small participation fee (e.g., Clothing Swap Meet Ups in New York; Armstrong et al., 2015). Swapping markets can occur as informal meetings between friends or as organized happenings with many participants (Laitala, 2014). It could be argued that swapping markets only constitute a business model in the case of larger happenings, which typically would be organized by a company or non-profit organization. Despite the question of its conceptualization, swapping markets offer a low-cost means for consumers to acquire and discard clothes that does not incur much environmental harm.

online reselling platforms: Online reselling platforms provide a channel for consumers to resell their used clothing and purchase secondhand clothes from others. A central benefit of online resell is its general availability across geographical locations, which facilitate transactions among consumers. There are several well-functioning examples of online reselling platforms. Perhaps the best example is the outdoor company Patagonia's online resell platform established in collaboration with eBay where consumers can resell their unwanted Patagonia products or purchase others' old Patagonia products (Pedersen, Gwozdz, & Hvass, 2016).

take back systems: In recognition of the clothing industry's extensive waste generation, numerous clothing companies have established incentivized take back systems allowing consumers to drop off their used clothing items – typically in exchange for a discount voucher (Hvass, 2015). H&M, WEEKDAY, Jack & Jones, Marks & Spencer, and Levi's are some of the companies that have implemented an in-store take back system. The discarded clothing is typically donated to charities, sold to secondhand stores, or recycled. This business model has, however, not been without controversy. Concerns have been raised that rewarding consumers for their donating efforts via discount vouchers stimulate more consumption, which carves out any achieved environmental benefits and potentially even worsens the problem. But this has, to our knowledge, not been investigated empirically yet.

repair services and in-stor repair: As illustrated by the observations of Winakor (1969), it was once common practice to repair and repurpose clothes to prolong its functionality. Traditional repair services have, however, lately re-gained some popularity following the increased consumer awareness of the both financial and environmental benefits of prolonging the life of existing clothes. The traditional repair services include tailors, shoemakers, and mending your own clothes. Similar services are also now being offered by clothing companies through the implementation of repair services in-store. A great example is Nudie Jeans who provide free repair services for their customers to ensure the longevity of their products. While a number of companies offer in-store repair services, they remain a small niche on the global clothing market.

4. consumer acceptance and adoption – the case of values

A central criterion for the success of alternative business models is the acceptance and use by consumers. Few business models will endure unless adopted by a significant number of users to guarantee a continuous revenue stream. The scientific literature on consumers' acceptance of alternative business models is currently scarce, although there have been a few notable studies. In a multi-methods study, Armstrong and colleagues (2015) explored consumer acceptance of innovative business models, including some of the herein-discussed models, where they observed a moderate to high consumer interest in take back systems and swapping. Interestingly, the innovative and experiential business models (e.g., renting and swapping) were perceived mostly suited for younger consumers, while business models emphasizing product satisfaction (e.g., repair or redesign) were deemed predominantly appealing to older consumers.

> 'a central criterion for the success of alternative business models is the acceptance and use by consumers'

Fisher et al. (2008) showed that consumers in the United Kingdom were unenthusiastic about purchasing secondhand clothing with prevailing barriers concerning the stigma connected to used clothes, the unknown origins of the clothes, and the prolonged time it takes to find the desired clothes. More recent studies have investigated the motivation of secondhand clothing consumption. These studies indicate that consumers' motivations include not only money saving, but also include frugality (through bargain hunting), rarity, nostalgia, and sometimes environmental concerns (Guiot & Roux, 2010; Joung & Park-Poaps, 2013; Turunen & Leipämaa-Leskinen, 2015).

4.1. human values

Previous research on environmentally friendly behaviors have identified individual differences in values as a significant predictor of performing environmentally friendly behavior (e.g., Poortinga, Steg, & Vlek, 2004). Human values are defined as "desirable transsituational goals, varying in importance, that serve as guiding principles in the life of a person or other social entity" (Schwartz, 1994). It is widely recognized that there are 56 universal values, which can be organized into four distinct clusters varying along two basic axes: openness to change (including self-direction and stimulation) versus conservation (including security and conformity); and self-transcendence (including altruism and forgiveness) versus self-enhancement (including power and ambition). While people possess a range of values, that may even partly conflict, those who strongly endorse self-transcendence values typically score low on self-enhancement values and vice versa (Crompton, 2010; Whitmarsh & Corner, 2017).

In general, the four clusters differ in their content and motivational direction. In terms of their motivational direction, self-transcendence and self-enhancement values reflect how people regulate the 'self', whereas openness to change and conservation values reflect the way people regulate change (Tamir et al., 2016). Content wise, openness to change refers to the desire of excitement, pleasure, novelty and challenge in life and the need to have independent thoughts. Conservation is, by contrast, the propensity to behave in ways that favor the stability of society and social relationships through the endorsement of self-restriction, order, and avoidance of change (Schwartz et al., 2012). This dimension has often been found unrelated to the performance of environmentally friendly behaviors. But as openness to change values emphasize the readiness for new ideas, experiences, and actions (contrasted by conservation), this dimension might be relevant for the current investigation.

motivational direction

self-transcendenc: reflects a motivation to transcend selfish concerns and connect with others.

self-enhancement: reflects a motivation to promote self-interest, even at the expense of others

Much research has shown that the other dimension, self-transcendence versus self-enhancement, is more strongly related to the environmental domain (Nordlund & Garvill, 2002; Thøgersen & Ölander, 2002). Self-transcendence reflects a motivation to transcend selfish concerns and connect with others. Self-enhancement reflects a motivation to promote self-interest, even at the expense of others (Tamir et al., 2016). Karp (1996) found that self-transcendence values were positively correlated with self-reported environmental behavior, while self-enhancement was negatively correlated. This observational pattern has since been replicated extensively. Whether the bipolar nature of self-transcendence and self-enhancement values persists in relation to clothing consumption and the acceptance of new business models is not straightforward to predict. For instance, fashion leasing might be used for strictly hedonic reasons due to its lower price or an easier access to exclusive clothes without any considerations for the associated environmental benefits.

In what follows, we assess consumer acceptance of and intention to use alternative business models through an online questionnaire-based study conducted in four Western countries (Germany, Poland, Sweden, and United States). Specifically, we investigate consumers' previous use of the eight identified alternative business models and their intention to use them in the future. We also test whether the consumers' support of alternative business models depend on their personal values.

5. data & method

The data stems from the consumer survey carried out in four countries (Germany, Poland, Sweden and the United States) between October 2016 and January 2017. The survey contained questions on clothing consumption behavior, attitudes, values, intentions and demographics with aim to explore consumers' current behaviors as well as their readiness for sustainable consumption. Further information on the questionnaire development, quality assurance and the data collection process is available in the Deliverable 3.1.1.1 "Field report – Consumer Survey".

To measure consumers' acceptance of alternative business models, we asked about past use as well as use intentions of eight different business models including clothing libraries, fashion rental, fashion leasing, swapping markets, reselling clothes online, incentivized take back services, traditional repair services and finally, repair services in-store. Past use was asked in form of a dummy variable, i.e., yes/no while future use intention ranged from 0 "very unlikely" to 100 "very likely". Beyond those main measurements, we also include demographic variables such as age (in years), sex (dummy) and income (in eleven comparable categories) as well as a short scale of Schwartz values (Beierlein et al., 2011). We calculated mean scores for the value dimensions self-transcendence, self-enhancement, conservation and openness to change according to Beierlein et al. (2011).

To analyze the data, we employed descriptive statistics, comparisons across countries (ANOVAS) as well as regression analyses. While the descriptive analyses and the country comparisons produce results regarding the past use and future use intentions across countries, we employ the regression analyses to identify factors explaining past use and future intentions such as demographics and values.

'the representative survey has consumers aged 18-65 years as a target group with approximately 1,000 respondents per country'

6. results

In a first step, we explore the past use and future use intention of consumers across countries. Table 1 presents the mean values, the standard deviation (SD) as well as the number of observations by business model and by country. The past use can vary between 0 and 1 where 0 means 0% and 1 a 100%. As highlighted in the last column (total), traditional repair services are most often used with 65.3% followed by online reselling platforms with 41.1%. All other business models are used by less than 20% of the consumers across all countries. Among the least used business models are clothing libraries with 4.7% and fashion leasing with 3.8%. When comparing the individual countries, we find that clothing libraries are significantly more often used in the United States with 11.3% than in the three remaining countries (less than 3.5%). A similar picture can be found for fashion leasing where 10.6% of U.S. consumers have used it before compared to less than 2.5% in the other countries.

Fashion rental is most popular among the four countries in Poland with 22.8% of the consumers indicating a past use. The same is true for swapping markets – here 24.0% of polish consumers have used it before while only less than 16% of consumers in the other countries have used it.

Online reselling platforms are most often used by consumers in Germany and Poland (around 50%) followed by Swedish consumers with 36.6% and U.S. consumer with 29.4%. The picture is exactly the other way around for incentivized take back services which is used by around 18% of Swedish and U.S. consumers, but only by around 10% of German and Polish consumers.

Regarding repair services, traditional repair services are by far the most often used business models in all countries, but still with a strong variation between countries varying from 49.1% of the consumers in the U.S. to 90.7% of the Polish consumers having used it before. The in-store repair service is not as widely distributed with 5.9% of Swedish consumers to 20.1 of Polish consumers having used it previously. All reported differences are statistically significant (tested with ANOVAS, including the post.hoc. tests Bonferroni, Scheffe and Sidak).

Table 1: descriptive statistics of alternative business models past and future use by country.

	Germany			Poland			Sweden			United States			Total		
	Mean	SD	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD	Obs
Past use (0 'no', 1 'yes')															
Clothing libraries	.032	.175	1072	.032	.175	977	.016	.127	1040	.113	.317	981	.047	.213	4070
Fashion rental	.125	.331	1072	.228	.420	977	.176	.381	1039	.174	.380	981	.175	.380	4069
Fashion leasing	.024	.154	1072	.012	.110	977	.013	.111	1040	.106	.308	981	.038	.191	4070
Swapping markets	.123	.329	1072	.240	.427	977	.151	.358	1040	.154	.361	981	.166	.372	4070
Online reselling platforms	.504	.500	1072	.476	.500	977	.366	.482	1040	.294	.456	981	.411	.492	4070
Incentivized take back services	.111	.314	1072	.094	.292	977	.184	.387	1040	.188	.391	981	.144	.351	4070
Traditional repair services	.546	.498	1072	.907	.291	977	.676	.468	1040	.491	.500	981	.653	.476	4070
Repair services in-store	.090	.287	1072	.201	.401	977	.059	.235	1040	.124	.330	980	.117	.321	4069
Future use intention (0 'very unlikely; 100 'very likely')															
Clothing libraries	21.146	27.290	1065	27.028	29.353	974	24.224	28.484	1025	31.249	3.829	981	25.792	29.204	4045
Fashion rental	38.574	33.534	1066	5.138	33.299	975	5.310	33.251	1032	35.872	32.949	981	43.689	33.890	4054
Fashion leasing	18.336	25.569	1064	22.292	26.228	975	18.397	24.725	1029	25.163	29.435	981	2.958	26.653	4049
Swapping markets	35.272	33.218	1066	45.887	35.004	975	4.998	34.798	1032	38.716	33.560	981	4.116	34.346	4054
Online reselling platforms	59.757	35.829	1068	63.964	32.443	975	52.529	36.050	1032	46.718	35.846	981	55.775	35.699	4056
Incentivized take back services	46.473	35.695	1066	64.205	32.424	975	57.748	34.967	1030	44.959	34.337	980	53.241	35.303	4051
Traditional repair services	56.545	35.585	1068	78.564	24.516	975	68.126	32.755	1035	54.506	34.760	981	64.294	33.675	4059
Repair services in-store	39.813	33.791	1067	5.688	32.766	974	38.795	33.050	1029	34.255	32.328	980	4.825	33.523	4050

Note:

6.1. intention to use alternative business models

Across all countries (Table 1, column: total), the future use intention shows a similar picture: more established business models such as traditional repair services and online reselling platforms are more intended to be used in the future. Also, the indicated use intention for incentivized take back services is relatively high with 53.2 (varying from 0 'very unlikely' to 100 'very likely') followed by fashion rental with 43.7, repair services in-store with 40.8 and swapping markets with 40.1. Clothing libraries and fashion leasing are least intended to be used by consumers with values below 30.

Comparing countries, we also find significant differences in the use intention. Here, Polish consumers seem to be most open to traditional repair services (78.6), incentivized take back services (64.2), online reselling platforms (64.0) and repair services in-store (50.7). For fashion rental, both Polish and Swedish consumers are equally open (Polish consumers: 50.1 and Swedish consumers: 50.3). Clothing libraries and fashion leasing are least likely to be used in the future by consumers in all countries – the former varying from 21.1 in Germany to 31.2 in the U.S. and the latter from 18.3 in Germany to 25.2 in the U.S.

'traditional repair services are by far the most often used business models in all countries, but still with a strong variation between countries varying from 49.1% of the consumers in the U.S. to 90.7% of the Polish consumers'

6.2. the influence of values

In a second step, we try to explain past and future use intention by demographic variables as well as consumers' values by employing regression analyses. As past use is measured as a dummy variable, we employ logistic regressions with the past use as dependent variable and values and demographic variables as independent variables. The results for all countries pooled are presented in Table 2, in particular, the odds ratios, the 95%-confidence intervals as well as selected goodness of fit measures are depicted. The results indicate that a higher self-transcendence increases the odds of having used clothing libraries, fashion rental, swapping markets, online reselling platforms, incentivized take back services and traditional repair services (odds ratios are above 1 and statistically significant). High self-enhancement also increases the likelihood of having used most business models except fashion rental, online reselling platforms and traditional repair services. Conservation and openness to change explain rather little in the past use. Not surprising, we find that generally, younger consumers are more likely to have used the alternative business models. While female consumers used swapping markets, online reselling platforms, incentivized take back services and traditional repair services more than their male counterparts, they used clothing libraries, fashion rental, fashion leasing and repair services in-store less.
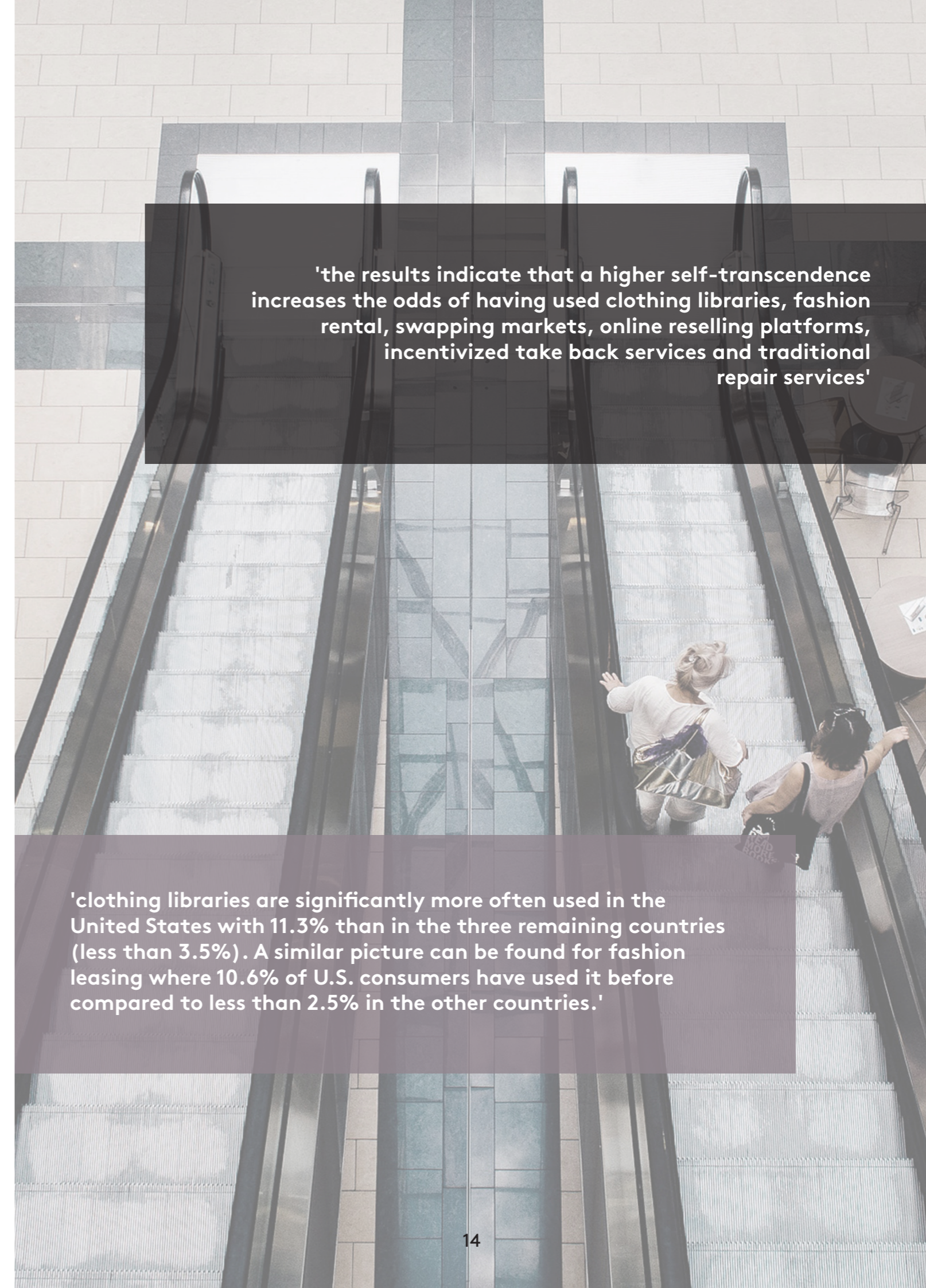
'female consumers used swapping markets, online reselling platforms, incentivized take back services and traditional repair services more than their male counterparts, but they used clothing libraries, fashion rental, fashion leasing and repair services in-store less.'

Comparing the explanatory factors across countries, we also carried out separate regression analyses by the individual country. The results are presented in the Appendix (Table A1 to A4). Generally, we find similar tendencies for the individual countries as described for the pooled analysis. For example, higher levels of self-transcendence or self-enhancement tend to come with a higher likelihood of past use of alternative business models. The same is true for consumers of a younger age.

Table 2: past use of alternative business models (all countries pooled)

use intention	Clothing libraries	Fashion rental	Fashion leasing	Swapping markets	Online reselling platforms	Incentivized take back services	Traditional repair services	Repair service in-store
Self-transcendence	1.50**	1.15*	.99	1.55***	1.19**	1.36***	1.13*	1.10
	[1.14,1.98]	[1.01,1.32]	[.73,1.36]	[1.33,1.80]	[1.07,1.32]	[1.17,1.59]	[1.01,1.25]	[.94,1.30]
Self-enhancement	1.73***	1.05	1.70***	1.11*	1.04	1.22***	.93	1.33***
	[1.47,2.04]	[.97,1.14]	[1.41,2.06]	[1.02,1.21]	[.97,1.12]	[1.12,1.34]	[.87,1.00]	[1.20,1.47]
Conservation	.88	1.08	1.12	.91	.93*	.97	.89**	.97
	[.73,1.05]	[.98,1.19]	[.90,1.39]	[.83,1.01]	[.86,1.00]	[.88,1.07]	[.83,.97]	[.86,1.09]
Openness to change	.74*	1.04	.88	1.03	1.08	1.01	1.32***	1.08
	[.56,.98]	[.90,1.20]	[.63,1.23]	[.89,1.19]	[.96,1.20]	[.85,1.18]	[1.17,1.48]	[.90,1.30]
Age	.96***	.99*	.97***	.98***	.97***	.97***	1.00	.99***
	[.95,.98]	[.98,1.00]	[.95,.98]	[.97,.98]	[.96,.97]	[.96,.98]	[1.00,1.01]	[.98,.99]
Female	.65**	.83*	.51***	1.43***	2.06***	1.43***	1.38***	.69***
	[.47,.88]	[.70,.99]	[.36,.72]	[1.19,1.72]	[1.78,2.37]	[1.17,1.74]	[1.19,1.61]	[.56,.85]
Income	1.05	1.09***	1.04	1.02	1.05***	1.05**	1.05***	1.07***
	[1.00,1.10]	[1.06,1.12]	[.99,1.10]	[.99,1.05]	[1.03,1.08]	[1.02,1.08]	[1.02,1.08]	[1.04,1.11]
Obs.	4049	4043	4044	4044	4049	4044	4044	4048
adj. R^2	.161	.031	.200	.052	.085	.067	.114	.074
F-value	188.05	107.18	206.21	172.20	402.56	203.03	443.13	206.40
p-value	.00	.00	.00	.00	.00	.00	.00	.00

Logit regression, odds ratios, 95% confidence intervals in brackets, robust standard errors, controls: country dummies with Germany as reference category
* p < .05, ** p < .01, *** p < .001

'the results indicate that a higher self-transcendence increases the odds of having used clothing libraries, fashion rental, swapping markets, online reselling platforms, incentivized take back services and traditional repair services'

'clothing libraries are significantly more often used in the United States with 11.3% than in the three remaining countries (less than 3.5%). A similar picture can be found for fashion leasing where 10.6% of U.S. consumers have used it before compared to less than 2.5% in the other countries.'

Regarding consumers' future use intention, we ran Ordinary Least Squares (OLS) regressions with future use intentions as the dependent variables and the same independent variables as before. Results are presented in Table 3. Again, higher self-transcendence is related to a higher use intention of all alternative business models. Self-enhancement is positively associated with use intention for clothing libraries, fashion rental, fashion leasing and repair services in-store, but not with the other business models. Higher values in conservation are negatively associated with all business models except fashion rental and fashion leasing. Younger consumers also show a higher use intention of all business models. Also, female consumers have higher intentions to use those in the future.

'younger consumers show a higher use intention of all business models. Also, female consumers have higher intentions to use those in the future'

The individual country results are presented in the Appendix (Tables A5 – A8). The individual country results mirror the polled results presented in Table 3 – with one exception: the results for Poland deviate slightly. While self-transcendence is only positively associated with incentivized take back services, we find negative associations between self-enhancement and fashion rental, swapping markets, incentivized take back services and traditional repair services.

Table 3: future use intention of alternative business models (all countries pooled)

use intention	Clothing libraries	Fashion rental	Fashion leasing	Swapping markets	Online reselling platforms	Incentivized take back services	Traditional repair services	Repair services in-store
Self-transcendence	5.92***	3.67***	4.66***	7.99***	5.37***	7.92***	5.43***	5.28***
	[4.62,7.23]	[2.06,5.28]	[3.49,5.83]	[6.48,9.50]	[3.72,7.03]	[6.32,9.52]	[3.84,7.01]	[3.75,6.80]
Self-enhancement	2.82***	1.66**	3.07***	.90	1.05	.99	-.86	2.29***
	[1.90,3.75]	[.61,2.71]	[2.22,3.92]	[-.15,1.96]	[-.01,2.11]	[-.08,2.06]	[-1.87,.16]	[1.27,3.31]
Conservation	-1.21*	-.54	-.08	-2.76***	-2.69***	-1.43*	-3.72***	-1.73**
	[-2.25,-.16]	[-1.74,.65]	[-1.01,.84]	[-3.93,-1.58]	[-3.87,-1.52]	[-2.64,-.22]	[-4.83,-2.62]	[-2.89,-.57]
Openness to change	-2.29**	-.02	-2.44***	-.90	2.01*	-.33	4.52***	.73
	[-3.75,-.84]	[-1.70,1.67]	[-3.76,-1.12]	[-2.55,.74]	[.27,3.75]	[-2.04,1.38]	[2.89,6.15]	[-.90,2.35]
Age	-.27***	-.31***	-.23***	-.41***	-.59***	-.38***	-.11*	-.32***
	[-.34,-.20]	[-.39,-.23]	[-.30,-.17]	[-.49,-.32]	[-.68,-.51]	[-.46,-.29]	[-.19,-.03]	[-.41,-.24]
Female	4.38***	4.51***	4.03***	11.68***	12.06***	9.27***	5.18***	.94
	[2.54,6.21]	[2.34,6.67]	[2.34,5.72]	[9.55,13.81]	[9.86,14.26]	[7.07,11.48]	[3.10,7.26]	[-1.17,3.05]
Income	.12	.87**	.69***	-.10	.38*	.56**	.63***	1.12***
	[-.17,.42]	[.51,1.22]	[.41,.97]	[-.45,.25]	[.02,.73]	[.21,.92]	[.30,.97]	[.78,1.46]
Obs.	4024	4033	4028	4033	4035	4030	4038	4029
adj. R^2	.069	.071	.066	.110	.147	.121	.126	.078
F-value	28.34	30.57	25.45	51.87	72.83	58.18	64.74	34.91
p-value	.00	.00	.00	.00	.00	.00	.00	.00

95% confidence intervals in brackets, robust standard errors, controls: country dummies with Germany as reference category
* p < .05, ** p < .01, *** p < .001

7. discussion

There is currently limited research on consumers' acceptance and adoption of alternative clothing business models that challenge traditional concepts of clothing production and consumption. We sought to address this gap by investigating consumers' previous use of eight alternative business models as well as their intention to use such models in the future. We carried out a survey in four Western countries with large and diverse groups of consumers, which offers important insights into the current state of alternative business models.

'results reveal that most consumers have not yet used alternative business models in relation to their clothing acquisition, particularly fashion leasing and clothing libraries'

The results reveal that most consumers have not yet used alternative business models in relation to their clothing acquisition. Particularly fashion leasing and clothing libraries have only been used previously by less than 4% and 5%, respectively, across the four countries. Despite the low adoption rates, these results are not unexpected given the still scarce availability of fashion leasing and clothing libraries – especially outside major cities. The low adoption rate among Swedish consumers (1.3% and 1.6%) compared to American consumers (10.6% and 11.3%) was, however, surprising considering that several of such business models have been established in Sweden (Pedersen & Netter, 2015).

'despite the low adoption rates, these results are not unexpected given the still scarce availability of fashion leasing and clothing libraries especially outside major cities'

The comparatively high adoption rates of online reselling platforms and traditional repair services likely reflect their stronger geographical diffusion and historical availability. For example, the online reselling platform, eBay, has millions of users and provides a platform for consumers to resell old clothes, which can be delivered to buyers almost anywhere in the world. It is also worth noting that Polish consumers reported a significantly higher adoption rate of traditional repair services (90%) compared to the other three countries. We are not aware of other cross-country studies assessing the use of traditional repair services and can therefore only speculate to the causes of the observed country differences. One explanation could be that Polish consumers generally have a lower income than consumers from the other countries, which would increase the incentive to repair existing clothes in order to save money. However, future studies should investigate this in greater detail.

'the low adoption rate among Swedish consumers, 1.3% and 1.6%, compared to American consumers, 10.6% and 11.3%, was however surprising considering that several of such business models have been established in Sweden'

Given the emerging nature of the business models in focus here, a relatively low adoption rate was to be expected. A more interesting aspect might therefore be consumers' willingness to use the alternative business models in the future. The results show that consumers are on average not very likely to use the alternative business models in the future. But there is significant variance across countries and business models. For example, Polish consumers indicate that they are likely to use both online reselling platforms, traditional repair services, and incentivized take back services in the future. The two former business models are unsurprising considering that many Polish consumers have used them before, but the positive inclination towards incentivized take back services highlights a potential for such services in Poland. German, Swedish, and American consumers exhibit a more neutral stance on their future likelihood of using incentivized take back services.

'results show that consumers are on average not very likely to use the alternative business models in the future. But there is significant variance across countries and business models'

These results partially support the findings of Armstrong et al. (2015) relating to consumers' support of take back services. While Armstrong and colleagues found a general support for take back services, our results indicate a more modest support with the exception of Polish consumers. They additionally found a general support for swapping markets, which our results do not support. Here, swapping markets are on average slightly unlikely to be used in the future across the four countries. The two least likely alternative business models to be used were fashion leasing and clothing libraries, which might be subjected to the same reasoning as offered to explain their low adoption rates, although one has to entertain the possibility that these two business models currently are not attractive to larger consumer segments. In a similar vein, it could also reflect a general aversion towards secondhand clothing as observed by Fisher et al. (2008).

Although there is generally a low intention to use many of the alternative business models, which could signal their limited diffusion potential across countries and consumer segments, it is important to bear in mind that smaller consumer segments may find it more appealing (see also Gwozdz, Nielsen, & Müller, 2017). In order to entertain this possibility, we investigated the influence of values and socio-demographic variables on the previous use and intention to use the alternative business models.

Previous environmental and psychological research on values has found that especially the endorsement of self-transcendence values is a good predictor of engagement in environmentally friendly behaviors. But as predicted, the influence of values may relate differently to clothing consumption due to its profound hedonic features. Indeed, our results show a more complex influence of values on the previous use and intention to use alternative business models. Contrary to expectations, self-enhancement positively predicts previous use of clothing libraries, fashion libraries, swapping markets, incentivized take back services, and repair services in-store. Self-transcendence does, however, also positively predict previous use for six of the eight business models (not fashion leasing and repair services in-store).
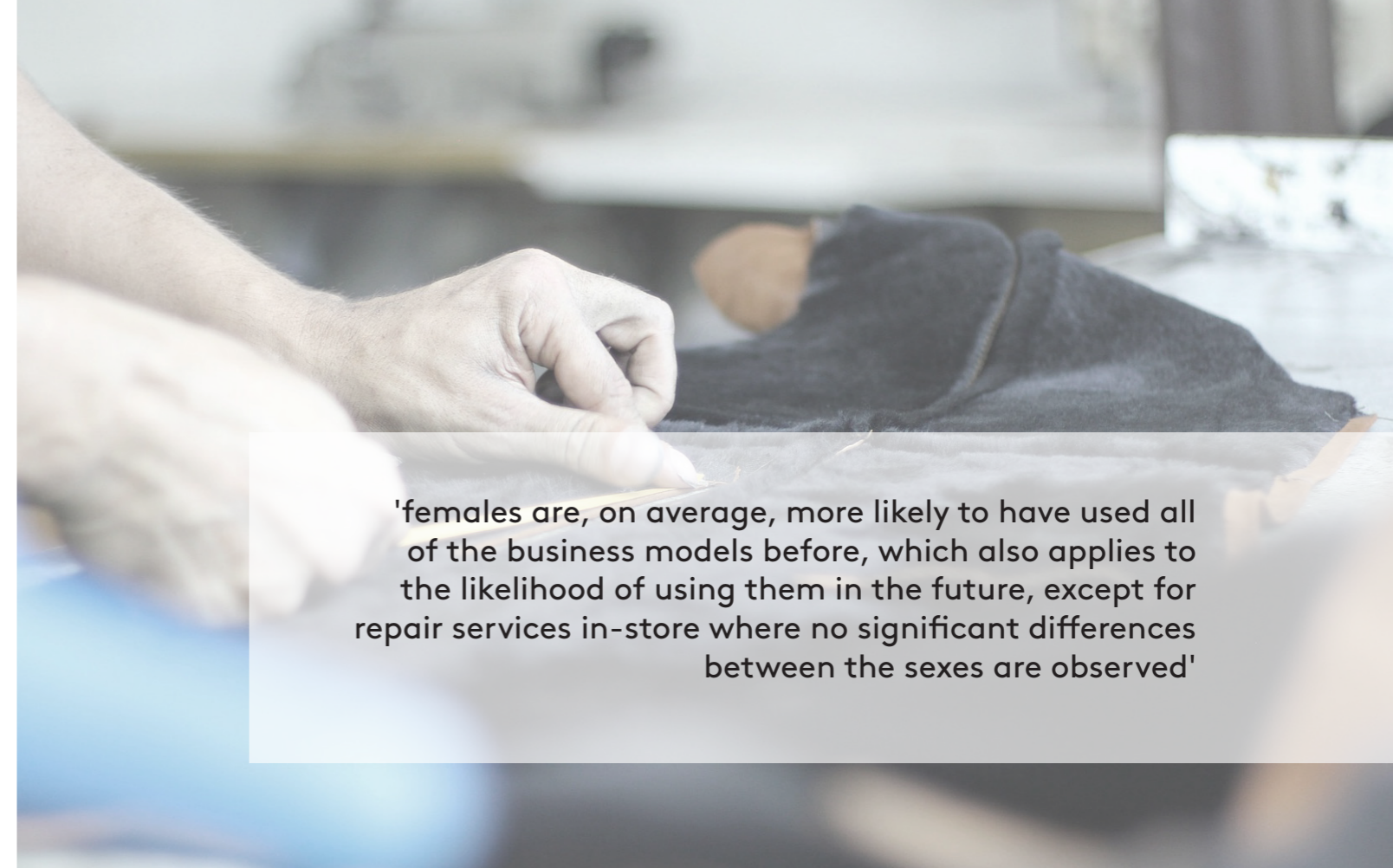
'females are, on average, more likely to have used all of the business models before, which also applies to the likelihood of using them in the future, except for repair services in-store where no significant differences between the sexes are observed'

These results could indicate that consumers use the alternative business models for different reasons. For instance, some might be motivated by their social and environmental benefits whereas others might be predominantly motivated by their benefits to themselves. Openness to change and conservation values do not influence the previous use of the business models to the same extent as self-transcendence and self-enhancement values. Openness to change is significantly and negatively related to the use of clothing libraries, but positively predicts the use of traditional repair services. Conservation is negatively related to the use of online reselling platforms and traditional repair services. Combined, this suggest, perhaps non-intuitively, that the more well-established alternative business models are less likely to have been used by consumers strongly endorsing conservation.

'these results could indicate that consumers use the alternative business models for different reasons. For instance, some might be motivated by their social and environmental benefits whereas others might be predominantly motivated by their benefits to themselves'

Self-transcendence values emerge as the best predictor in relation to the intention to use the alternative business models in the future. Self-transcendence was positively related to all business models. Thus, consumers who strongly endorse self-transcendence values more often report being like to use the alternative business models in the future (although with the exception of Polish consumers). Somewhat similar to previous use, self-enhancement values significantly and positively predict the intention to use clothing libraries, fashion rental, fashion leasing, and repair services in-store, which again highlights the multifaceted motivations that might underline the acceptance and use of

the alternative business models. Conservation and openness to change values emerge here as more important predictors than in relation to the previous use. Consumers strongly endorsing conservation values are generally less likely to use the business models in the future, whereas the pattern is less consistent for consumers endorsing openness to change values. The negative influence of conservation values on the adoption of alternative business models is expected as they reflect a general propensity to behave in ways that favor the stability of society through a resistance to change (Schwartz et al., 2012). By contrast, it is more surprising that openness to change values are either insignificant or negatively related to the intention to use particularly the more novel alternative business models (e.g., clothing libraries, fashion leasing, or swapping markets).

'contrary to expectations, self-enhancement positively predicts previous use of clothing libraries, fashion libraries, swapping markets, incentivized take back services, and repair services in-store'

In general, it is important to note that the effect sizes relating to the values are rather small and most are only significant when the country data is pooled. The limited effect of values to predict individual behaviors is, however, nothing new and has been observed by other researchers (e.g., Blake, 1999). While the values may have limited predictive power due to their abstract nature, they exert important influences on more behavior-specific psychological constructs such as personal norms, goals, and intentions (e.g., Stern, 2000), which justify their inclusion.

Socio-demographic factors also have a significant influence on the previous use and intention to use alternative business models, specifically sex and age. Females are, on average, more likely to have used all of the business models before, which also applies to the likelihood of using them in the future, except for repair services in-store where no significant differences between the sexes are observed. Younger consumers report being more likely to use all of the alternative business models in the future compared to older consumers. This pattern is similarly observed in relation to prior use, although no age effects are found with regards to traditional repair services or repair services in-store.

These findings provide partial support for the observations by Armstrong et al. (2015) regarding age and alternative business models. Specifically, they found that the more innovative and experiential business models (e.g., renting and swapping) were deemed mostly suited for younger consumers, which are well-aligned with the present results. Armstrong et al. (2015) also observed that business models emphasizing product satisfaction (e.g., repair) where deemed more attractive to older consumers. Our results do not find a similar pattern. While there are no statistically significant age effects on prior use of traditional repair services or repair services in-store, younger consumers reported being more likely than older consumers to use these two alternative business models in the future. This suggests that young consumers are generally more supportive of alternatives business models and hence may constitute a key target group for new emerging alternative business models.

'young consumers are generally more supportive of alternatives business models and hence may constitute a key target group for new emerging alternative business models'
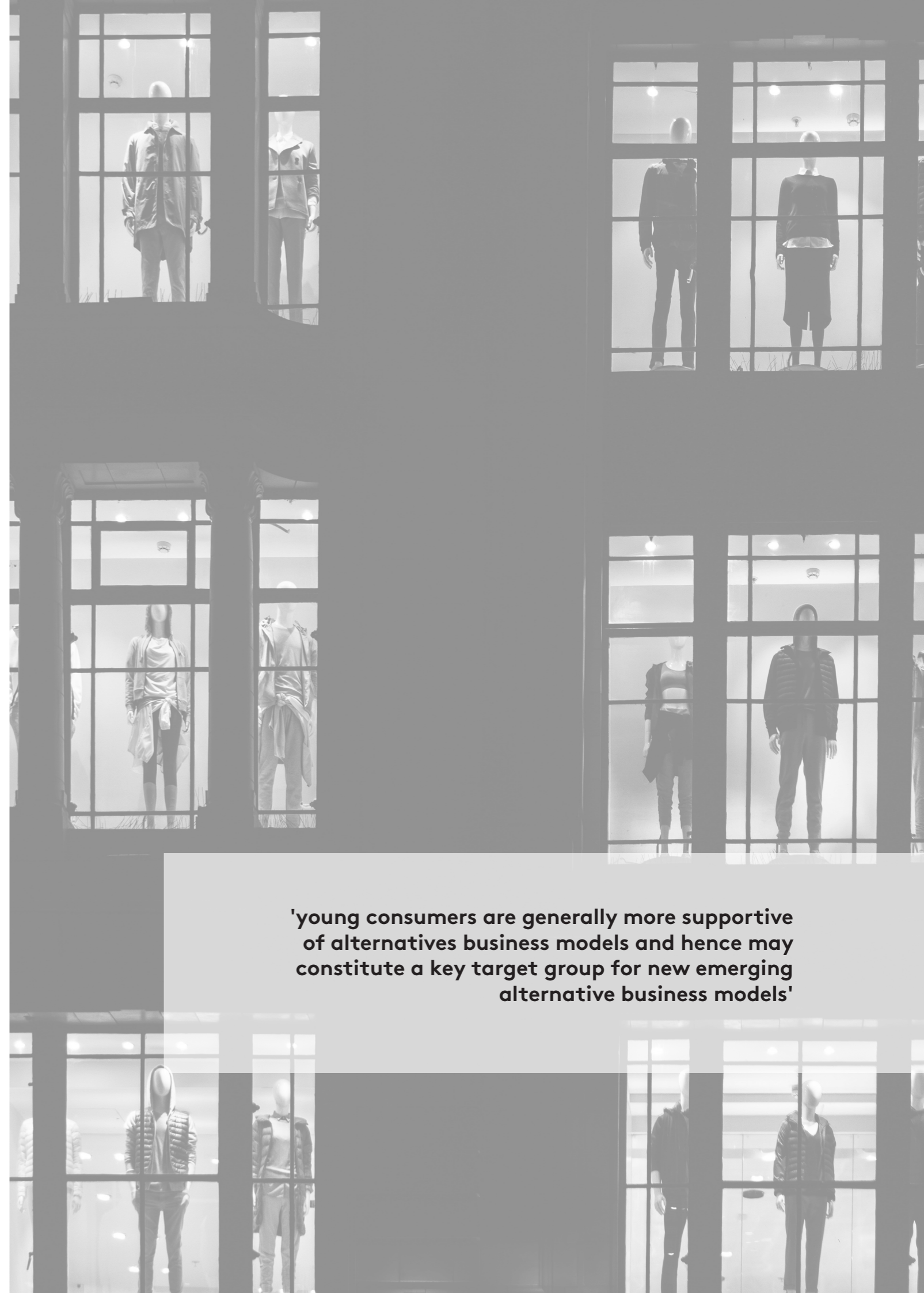
8. reflections and conclusion

This report provides the first comprehensive insights into the state of consumer acceptance and adoption of alternative business models in the clothing industry. Findings from large consumer groups across four Western countries illuminate the current low use of alternative business models except for the more well-established models, namely online reselling platforms and traditional repair services. Our results do not suggest that large consumer segments are likely to adopt and use the majority of the alternative business models in the near future. While the alternative business models may not currently be attractive to all consumers, our results indicate that certain consumer segments are more supportive of the business models. Particularly female and younger consumers report a higher intention to use the alternative business models in the future. The same is true of consumers strongly endorsing self-transcendence values, which served as a strong predictor of future use intention. Interesting, self-enhancement values also positively predicted future use intention for certain alternative business models (e.g., clothing libraries and fashion leasing), suggesting that tailored communication messages about the alternative business models' purpose and benefits may be needed for different consumer segments. Practionors should therefore be aware that consumers' motivation for using alternative business model may be very heterogeneous. That being said, future research should investigate appropriate communication messages empirically to determine which appeals work best for consumers with self-transcendence and self-enhancement values, respectively.

'important to consider is the limited awareness of most of the alternative business models, which may explain the low acceptance of the business models'

Although the present survey gives a broad view of consumers across four countries, the results should be interpreted with care. This is especially true as the employed data represents what consumers think they do which is not necessarily equal to what they actually do. When interpreting and using the above presented findings, one always has to consider that the data is based on consumers' self-reports. This said, following the nature of our analyses, we cannot rule out that the alternative business models may be deemed interesting and attractive to smaller sub-segments of consumers (e.g., a younger segment). Future studies should explore in greater detail whether this might in fact be the case. Another important to consider is the limited awareness of most of the alternative business models, including our respondents, which may explain the low acceptance of the business models. As a result, businesses with one of the studied business models should emphasize awareness creating campaigns in order to reach broader reaching consumer segments and to educate them on the social and/or environmental benefits of their business model.

'as a result, businesses with one of the studied business models should emphasize awareness creating campaigns in order to reach broader reaching consumer segments and to educate them on the social and/or environmental benefits of their business model'

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appendix

Table A1: Past use of alternative business models in Germany

Past use	Clothing libraries	Fashion rental	Fashion leasing	Swapping markets	Online reselling platforms	Incentivized take back services	Traditional repair services	Repair services in-store
Self-transcendence	1.18	1.13	.99	1.38	1.06	1.02	1.03	.96
	[.71,1.95]	[.85,1.50]	[.50,1.94]	[.99,1.92]	[.87,1.29]	[.76,1.37]	[.86,1.25]	[.69,1.33]
Self-enhancement	1.73**	.91	1.92**	1.18	1.01	1.25*	.90	1.32**
	[1.22,2.46]	[.76,1.09]	[1.28,2.88]	[.99,1.42]	[.88,1.15]	[1.01,1.54]	[.79,1.02]	[1.07,1.63]
Conservation	1.06	1.18	1.66*	.95	.90	1.06	.97	1.27
	[.69,1.61]	[.95,1.47]	[1.10,2.50]	[.76,1.18]	[.78,1.03]	[.87,1.30]	[.85,1.11]	[.99,1.63]
Openness to change	.65	1.02	.56	.93	1.08	1.05	1.31*	1.33
	[.38,1.12]	[.76,1.38]	[.30,1.05]	[.71,1.22]	[.87,1.34]	[.74,1.48]	[1.06,1.62]	[.87,2.04]
Age	.99	.99	.97	.97***	.98***	.96***	1.00	.98
	[.96,1.02]	[.97,1.00]	[.94,1.01]	[.96,.98]	[.97,.99]	[.95,.98]	[.99,1.02]	[.97,1.00]
Female	.57	1.13	.37*	1.70**	2.39***	1.23	1.26	.63*
	[.29,1.13]	[.77,1.64]	[.15,.94]	[1.14,2.52]	[1.83,3.13]	[.82,1.84]	[.97,1.64]	[.40,1.00]
Income	1.02	1.08*	1.08	1.04	1.05*	1.07*	1.06*	1.07
	[.89,1.17]	[1.01,1.15]	[.95,1.22]	[.97,1.10]	[1.01,1.10]	[1.01,1.14]	[1.01,1.10]	[1.00,1.15]
Obs.	1064	1064	1064	1064	1064	1064	1064	1064
adj. R^2	.059	.014	.131	.045	.045	.048	.016	.056
F-value	13.66	9.97	43.27	31.99	62.33	35.04	22.46	39.41
p-value	.06	.19	.00	.00	.00	.00	.00	.00

Logit regression, Odds ratios, 95% confidence intervals in brackets, robust standard errors
* $p < .05$, ** $p < .01$, *** $p < .001$

Table A2: Past use of alternative business models in Poland

Past use	Clothing libraries	Fashion rental	Fashion leasing	Swapping markets	Online reselling platforms	Incentivized take back services	Traditional repair services	Repair services in-store
Self-transcendence	1.58	1.14	.58	1.40*	1.30*	1.59*	1.05	1.09
	[.72,3.49]	[.85,1.52]	[.27,1.24]	[1.05,1.89]	[1.03,1.65]	[1.02,2.48]	[.72,1.53]	[.82,1.44]
Self-enhancement	1.21	1.02	1.18	.90	1.07	1.10	.79	1.04
	[.79,1.85]	[.87,1.20]	[.61,2.31]	[.77,1.06]	[.93,1.23]	[.87,1.39]	[.61,1.02]	[.88,1.23]
Conservation	.89	1.06	.93	1.01	.86	.90	.96	.77*
	[.55,1.45]	[.86,1.30]	[.64,1.34]	[.83,1.24]	[.72,1.02]	[.69,1.18]	[.71,1.30]	[.63,.95]
Openness to change	.86	1.05	1.54	1.03	1.02	1.07	1.22	1.14
	[.36,2.06]	[.80,1.37]	[.44,5.45]	[.78,1.36]	[.81,1.28]	[.68,1.67]	[.82,1.81]	[.86,1.49]
Age	.94**	.98**	.96	.98**	.96***	.96***	.99	1.00
	[.91,.98]	[.97,.99]	[.91,1.00]	[.97,.99]	[.95,.97]	[.94,.98]	[.98,1.01]	[.99,1.01]
Female	.51	1.81**	.54	1.91***	1.91***	.98	2.60***	.83
	[.24,1.07]	[1.28,2.56]	[.17,1.69]	[1.36,2.68]	[1.44,2.53]	[.60,1.60]	[1.64,4.13]	[.59,1.16]
Income	1.18*	1.10***	1.08	1.00	1.05*	1.05	1.04	1.08**
	[1.03,1.34]	[1.04,1.15]	[.86,1.36]	[.95,1.06]	[1.00,1.10]	[.97,1.14]	[.97,1.12]	[1.02,1.14]
Obs.	973	973	973	973	973	973	973	973
adj. R^2	.073	.031	.064	.039	.085	.044	.040	.019
F-value	17.53	31.79	16.91	40.22	106.64	27.04	24.74	18.90
p-value	.01	.00	.02	.00	.00	.00	.00	.01

Logit regression, Odds ratios, 95% confidence intervals in brackets, robust standard errors
* $p < .05$, ** $p < .01$, *** $p < .001$

Table A3: Past use of alternative business models in Sweden

Past use	Clothing libraries	Fashion rental	Fashion leasing	Swapping markets	Online reselling platforms	Incentivized take back services	Traditional repair services	Repair services in-store
Self-transcendence	1.48	1.12	.93	1.71***	1.18	1.40*	1.17	.95
	[.67,3.26]	[.88,1.42]	[.37,2.30]	[1.28,2.28]	[.96,1.44]	[1.08,1.81]	[.97,1.40]	[.66,1.38]
Self-enhancement	1.14	.98	.89	1.01	.86	1.05	.91	1.39*
	[.62,2.11]	[.81,1.18]	[.46,1.70]	[.83,1.24]	[.74,1.00]	[.87,1.26]	[.78,1.06]	[1.04,1.86]
Conservation	.58*	1.03	.87	.77**	.94	.88	.80**	.89
	[.34,.98]	[.87,1.21]	[.57,1.33]	[.64,.93]	[.80,1.09]	[.74,1.04]	[.69,.93]	[.68,1.17]
Openness to change	.99	1.02	2.72	1.04	1.18	1.04	1.37**	1.28
	[.43,2.29]	[.78,1.34]	[.78,9.53]	[.96,1.71]	[.94,1.48]	[.80,1.34]	[1.12,1.69]	[.80,2.07]
Age	.97	1.02**	.99	.99	.96***	.99	1.00	.99
	[.93,1.02]	[1.01,1.03]	[.93,1.05]	[.98,1.01]	[.95,.97]	[.97,1.00]	[.99,1.02]	[.97,1.01]
Female	2.07	.54***	.84	1.90**	2.68***	3.42***	1.59**	.77
	[.58,7.40]	[.38,.76]	[.25,2.87]	[1.28,2.84]	[1.99,3.61]	[2.28,5.14]	[1.19,2.12]	[.42,1.41]
Income	1.04	1.08**	1.03	1.00	1.04	1.04	1.03	.96
	[.91,1.20]	[1.02,1.15]	[.86,1.22]	[.94,1.07]	[.99,1.09]	[.98,1.11]	[.98,1.08]	[.86,1.08]
Obs.	1027	1026	1027	1027	1030	1027	1027	1027
adj. R^2	.069	.043	.038	.067	.096	.077	.031	.025
F-value	15.32	43.05	22.21	44.32	113.58	71.61	39.98	11.01
p-value	.03	.00	.00	.00	.00	.00	.00	.14

Logit regression, Odds ratios, 95% confidence intervals in brackets, robust standard errors
* $p < .05$, ** $p < .01$, *** $p < .001$

Table A4: Past use of alternative business models in United States

Past use	libraries	Fashion rental	Fashion leasing	markets	platforms	services	repair services	in-store
Self-transcendence	1.49	1.37	1.13	1.43*	1.20	1.23	1.17	1.34
	[.99,2.23]	[.98,1.91]	[.74,1.71]	[1.04,1.95]	[.94,1.55]	[.90,1.68]	[.94,1.46]	[.91,1.97]
Self-enhancement	1.98***	1.17*	1.83***	1.28**	1.14*	1.32***	.98	1.63***
	[1.58,2.49]	[1.00,1.36]	[1.44,2.33]	[1.08,1.51]	[1.00,1.29]	[1.13,1.54]	[.87,1.10]	[1.34,1.99]
Conservation	.90	1.10	1.09	1.00	1.04	1.05	.91	1.07
	[.69,1.18]	[.88,1.38]	[.79,1.52]	[.81,1.23]	[.88,1.22]	[.87,1.28]	[.79,1.06]	[.80,1.41]
Openness to change	.69*	1.03	.74	.98	1.05	1.03	1.32*	.81
	[.49,.99]	[.75,1.41]	[.51,1.09]	[.73,1.33]	[.82,1.35]	[.75,1.43]	[1.06,1.65]	[.56,1.18]
Age	.96***	.99*	.96***	.97***	.97***	.96***	1.01	.96***
	[.94,.98]	[.97,1.00]	[.94,.98]	[.95,.98]	[.95,.98]	[.95,.97]	[1.00,1.02]	[.94,.97]
Female	.63*	.45***	.52**	.72	1.43*	.96	1.09	.57*
	[.41,.98]	[.31,.64]	[.34,.81]	[.50,1.05]	[1.06,1.95]	[.68,1.36]	[.83,1.43]	[.38,.88]
Income	1.02	1.10***	1.03	1.00	1.07**	1.03	1.06**	1.06
	[.96,1.09]	[1.04,1.15]	[.97,1.10]	[.95,1.06]	[1.02,1.12]	[.97,1.08]	[1.01,1.10]	[1.00,1.13]
Obs.	980	980	980	980	980	980	980	979
adj. R^2	.165	.086	.156	.065	.063	.083	.021	.144
F-value	75.82	73.30	67.64	49.64	70.18	64.58	28.03	80.89
p-value	.00	.00	.00	.00	.00	.00	.00	.00

Logit regression, Odds ratios, 95% confidence intervals in brackets, robust standard errors
* $p < .05$, ** $p < .01$, *** $p < .001$

Table A5: Future use intention of alternative business models in Germany

Past use	Clothing libraries	Fashion rental	Fashion leasing	Swapping markets	Online reselling platforms	take back services	Traditional repair services	Repair services in-store
Self-transcendence	1.18	1.13	.99	1.38	1.06	1.02	1.03	.96
	[.71,1.95]	[.85,1.50]	[.50,1.94]	[.99,1.92]	[.87,1.29]	[.76,1.37]	[.86,1.25]	[.69,1.33]
Self-enhancement	1.73**	.91	1.92**	1.18	1.01	1.25*	.90	1.32**
	[1.22,2.46]	[.76,1.09]	[1.28,2.88]	[.99,1.42]	[.88,1.15]	[1.01,1.54]	[.79,1.02]	[1.07,1.63]
Conservation	1.06	1.18	1.66*	.95	.90	1.06	.97	1.27
	[.69,1.61]	[.95,1.47]	[1.10,2.50]	[.76,1.18]	[.78,1.03]	[.87,1.30]	[.85,1.11]	[.99,1.63]
Openness to change	.65	1.02	.56	.93	1.08	1.05	1.31*	1.33
	[.38,1.12]	[.76,1.38]	[.30,1.05]	[.71,1.22]	[.87,1.34]	[.74,1.48]	[1.06,1.62]	[.87,2.04]
Age	.99	.99	.97	.97***	.98***	.96***	1.00	.98
	[.96,1.02]	[.97,1.00]	[.94,1.01]	[.96,.98]	[.97,.99]	[.95,.98]	[.99,1.02]	[.97,1.00]
Female	.57	1.13	.37*	1.70**	2.39***	1.23	1.26	.63*
	[.29,1.13]	[.77,1.64]	[.15,.94]	[1.14,2.52]	[1.83,3.13]	[.82,1.84]	[.97,1.64]	[.40,1.00]
Income	1.02	1.08*	1.08	1.04	1.05*	1.07*	1.06*	1.07
	[.89,1.17]	[1.01,1.15]	[.95,1.22]	[.97,1.10]	[1.01,1.10]	[1.01,1.14]	[1.01,1.10]	[1.00,1.15]
Obs.	1064	1064	1064	1064	1064	1064	1064	1064
adj. R^2	.059	.014	.131	.045	.045	.048	.016	.056
F-value	13.66	9.97	43.27	31.99	62.33	35.04	22.46	39.41
p-value	.06	.19	.00	.00	.00	.00	.00	.00

95% confidence intervals in brackets, robust standard errors
* $p < .05$, ** $p < .01$, *** $p < .001$

Table A6: Future use intention of alternative business models in Poland

Past use	Clothing libraries	Fashion rental	Fashion leasing	Swapping markets	Online reselling platforms	Incentivized take back services	Traditional repair services	Repair services in-store
Self-transcendence	1.58	1.14	.58	1.40*	1.30*	1.59*	1.05	1.09
	[.72,3.49]	[.85,1.52]	[.27,1.24]	[1.05,1.89]	[1.03,1.65]	[1.02,2.48]	[.72,1.53]	[.82,1.44]
Self-enhancement	1.21	1.02	1.18	.90	1.07	1.10	.79	1.04
	[.79,1.85]	[.87,1.20]	[.61,2.31]	[.77,1.06]	[.93,1.23]	[.87,1.39]	[.61,1.02]	[.88,1.23]
Conservation	.89	1.06	.93	1.01	.86	.90	.96	.77*
	[.55,1.45]	[.86,1.30]	[.64,1.34]	[.83,1.24]	[.72,1.02]	[.69,1.18]	[.71,1.30]	[.63,.95]
Openness to change	.86	1.05	1.54	1.03	1.02	1.07	1.22	1.14
	[.36,2.06]	[.80,1.37]	[.44,5.45]	[.78,1.36]	[.81,1.28]	[.68,1.67]	[.82,1.81]	[.86,1.49]
Age	.94**	.98**	.96	.98***	.96***	.96***	.99	1.00
	[.91,.98]	[.97,.99]	[.91,1.00]	[.97,.99]	[.95,.97]	[.94,.98]	[.98,1.01]	[.99,1.01]
Female	.51	1.81***	.54	1.91***	1.91***	.98	2.60***	.83
	[.24,1.07]	[1.28,2.56]	[.17,1.69]	[1.36,2.68]	[1.44,2.53]	[.60,1.60]	[1.64,4.13]	[.59,1.16]
Income	1.18*	1.10***	1.08	1.00	1.05*	1.05	1.04	1.08**
	[1.03,1.34]	[1.04,1.15]	[.86,1.36]	[.95,1.06]	[1.00,1.10]	[.97,1.14]	[.97,1.12]	[1.02,1.14]
Obs.	973	973	973	973	973	973	973	973
adj. R^2	.073	.031	.064	.039	.085	.044	.040	.019
F-value	17.53	31.79	16.91	40.22	106.64	27.04	24.74	18.90
p-value	.01	.00	.02	.00	.00	.00	.00	.01

95% confidence intervals in brackets, robust standard errors
* $p < .05$, ** $p < .01$, *** $p < .001$

Table A7: Future use intention of alternative business models in Sweden

Past use	Clothing libraries	Fashion rental	Fashion leasing	Swapping markets	Online reselling platforms	Incentivized take back services	Traditional repair services	Repair services in-store
Self-transcendence	1.48	1.12	.93	1.71***	1.18	1.40*	1.17	.95
	[.67,3.26]	[.88,1.42]	[.37,2.30]	[1.28,2.28]	[.96,1.44]	[1.08,1.81]	[.97,1.40]	[.66,1.38]
Self-enhancement	1.14	.98	.89	1.01	.86	1.05	.91	1.39*
	[.62,2.11]	[.81,1.18]	[.46,1.70]	[.83,1.24]	[.74,1.00]	[.87,1.26]	[.78,1.06]	[1.04,1.86]
Conservation	.58*	1.03	.87	.77**	.94	.88	.80**	.89
	[.34,.98]	[.87,1.21]	[.57,1.33]	[.64,.93]	[.80,1.09]	[.74,1.04]	[.69,.93]	[.68,1.17]
Openness to change	.99	1.02	2.72	1.28	1.18	1.04	1.37*	1.28
	[.43,2.29]	[.78,1.34]	[.78,9.53]	[.96,1.71]	[.94,1.48]	[.80,1.34]	[1.12,1.69]	[.80,2.07]
Age	.97	1.02**	.99	.99	.99	.96***	.99	.99
	[.93,1.02]	[1.01,1.03]	[.93,1.05]	[.98,1.01]	[.98,1.01]	[.95,.97]	[.97,1.00]	[.97,1.01]
Female	2.07	.54***	.84	1.90**	2.68***	3.42***	1.59**	.77
	[.58,7.40]	[.38,.76]	[.25,2.87]	[1.28,2.84]	[1.99,3.61]	[2.28,5.14]	[1.19,2.12]	[.42,1.41]
Income	1.04	1.08**	1.03	1.00	1.04	1.04	1.03	.96
	[.91,1.20]	[1.02,1.15]	[.86,1.22]	[.94,1.07]	[.99,1.09]	[.98,1.11]	[.98,1.08]	[.86,1.08]
Obs.	1027	1026	1027	1027	1030	1027	1027	1027
adj. R^2	.069	.043	.038	.067	.096	.077	.031	.025
F-value	15.32	43.05	22.21	44.32	113.58	71.61	39.98	11.01
p-value	.03	.00	.00	.00	.00	.00	.00	.14

95% confidence intervals in brackets, robust standard errors
* $p < .05$, ** $p < .01$, *** $p < .001$

Table A8: Future use intention of alternative business models in United States

Past use	Clothing libraries	Fashion rental	Fashion leasing	Swapping markets	Online reselling platforms	Incentivized take back services	Traditional repair services	Repair services in-store
Self-transcendence	1.49	1.37	1.13	1.43*	1.20	1.23	1.17	1.34
	[.99,2.23]	[.98,1.91]	[.74,1.71]	[1.04,1.95]	[.94,1.55]	[.90,1.68]	[.94,1.46]	[.91,1.97]
Self-enhancement	1.98***	1.17*	1.83***	1.28**	1.14*	1.32***	.98	1.63***
	[1.58,2.49]	[1.00,1.36]	[1.44,2.33]	[1.08,1.51]	[1.00,1.29]	[1.13,1.54]	[.87,1.10]	[1.34,1.99]
Conservation	.90	1.10	1.09	1.00	1.04	1.05	.91	1.07
	[.69,1.18]	[.88,1.38]	[.79,1.52]	[.81,1.23]	[.88,1.22]	[.87,1.28]	[.79,1.06]	[.80,1.41]
Openness to change	.69*	1.03	.74	.98	1.05	1.03	1.32*	.81
	[.49,.99]	[.75,1.41]	[.51,1.09]	[.73,1.33]	[.82,1.35]	[.75,1.43]	[1.06,1.65]	[.56,1.18]
Age	.96***	.99*	.96***	.97***	.97***	.96***	1.01	.96***
	[.94,.98]	[.97,1.00]	[.94,.98]	[.95,.98]	[.95,.98]	[.95,.97]	[1.00,1.02]	[.94,.97]
Female	.63*	.45***	.52**	.72	1.43*	.96	1.09	.57*
	[.41,.98]	[.31,.64]	[.34,.81]	[.50,1.05]	[1.06,1.95]	[.68,1.36]	[.83,1.43]	[.38,.88]
Income	1.02	1.10***	1.03	1.00	1.07**	1.03	1.06**	1.06
	[.96,1.09]	[1.04,1.15]	[.97,1.10]	[.95,1.06]	[1.02,1.12]	[.97,1.08]	[1.01,1.10]	[1.00,1.13]
Obs.	980	980	980	980	980	980	980	979
adj. R^2	.165	.086	.156	.065	.063	.083	.021	.144
F-value	75.82	73.30	67.64	49.64	70.18	64.58	28.03	80.89
p-value	.00	.00	.00	.00	.00	.00	.00	.00

95% confidence intervals in brackets, robust standard errors
* $p < .05$, ** $p < .01$, *** $p < .001$

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Mistra Future Fashion is a research program that focuses on how to turn today's fashion industry and consumer habits toward sustainable fashion and behavior. Guided by the principles of the circular economy model, the program operates cross disciplinary and involves 60+ partners from the fashion ecosystem. Its unique system perspective combines new methods for design, production, use and recycling with relevant aspects such as new business models, policies, consumer science, life-cycle-assessments, system analysis, chemistry, engineering etc.

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