



Bridging the Intention-Behaviour Gap in Circular Consumption: Consumer Segmentation and Barriers Toward Re-Use Utilisations

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Abstract

Product re-use is vital for the circular economy, yet a gap persists between policies and consumer behaviour. The objective of this study is to investigate consumer motivations and barriers to engage in re-use practices, with a focus on re-use centres. Data from a representative questionnaire survey (2025) reveal a pronounced intention-behaviour gap: despite generally positive attitudes towards re-use and environmental protection, 74.8% of respondents have never visited a re-use centre. The findings demonstrate that this gap is driven by a complex interaction, where dominant economic motivators are continuously neutralized by intense hygiene and quality anxieties. Cluster analysis identifies three consumer segments: Sceptics with High Barriers (19%), characterised by mistrust and hygiene concerns; Highly Motivated but Cautious (34%), who value sustainability yet perceive risks; and Pragmatic Realists (47%), prioritising price and convenience. The paper offers differentiated recommendations to bridge the intention-behaviour gap and increase re-use centre utilisation.

Keywords

Sustainable Consumption, Re-Use Motivation, Re-Use Barrier, Consumer Segment, Circular Economy

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I. Introduction

Inefficient linear models of production and consumption lead to premature product disposal (Kircher, 2021), whereas the circular economy (CE) offers a strategic alternative by prioritizing re-use to prevent waste and preserve material value (Singh and Ordoñez, 2016). This transition is urgent in the Czech Republic, where per capita municipal waste rose from 362 to 409 kg between 2022 and 2023, with 41% landfilled (Czech Statistical Office, 2023, 2024). However, physical infrastructure alone is insufficient without integration into daily routines, as a significant intention-behaviour gap persists. To address this, the objective of this study is twofold: first, to identify different consumer segments based on their unique motivations and barriers toward re-use, and second, to provide evidence that can serve as a basis for informed decision-making by policymakers. This segmentation serves as a foundation for developing targeted marketing and operational strategies to close the intention-behaviour gap in municipal re-use networks.

II. Literature Review

Re-use in the context of the circular economy and the role of re-use centres

Transitioning to a CE requires decoupling growth from resource use. Prioritising re-use over recycling is essential, as it preserves product integrity and energy more effectively while enhancing social equity through affordable access to goods (Alexander and Smaje, 2008). In this framework, re-use centres act as essential institutional tools for extending product lifetimes and diverting functional items from the waste stream. The greatest potential for these circular loops is typically found in categories such as building materials, electrical appliances, textiles, and particularly furniture (Wiprächtiger, 2022). This process is often intertwined with upcycling, which can enhance a product's value while delivering substantial ecological advantages (Van Hees et al., 2025). Furthermore, the growth of re-use practices is increasingly bolstered by digital platforms that facilitate sharing and second-hand exchange, effectively reducing the demand for virgin resources (Björklund et al., 2023).

However, re-use expansion is hindered by administrative and financial burdens for small-scale operators (Milios and Dalhammar, 2020), while an insufficient density of collection points and logistical hubs creates a “convenience gap” that complicates the return of bulky items like furniture into circulation (Fortuna and Diyamandoglu, 2017).

Theoretical Framework of the Intention-Behaviour Gap and Empirical Drivers of Re-use Behaviour

The Theory of Planned Behavior (TPB) (Ajzen, 1991) provides a robust framework for explaining circular practices and understanding the intention-behaviour gap, positing that intentions are driven by attitudes, subjective norms, and perceived behavioural control (PBC). In re-use, this model is often extended by incorporating motivations and contextual factors (Stern, 2000; Klöckner, 2013). For instance, Ertz et al. (2017) demonstrated that motivation serves as a powerful, independent predictor of re-use intentions. Similarly, in the

second-hand sector, Borusiak et al. (2020) found that positive attitudes toward sustainable consumption, PBC, and personal norms are critically linked to purchasing intentions. On a broader scale, consumer decision-making is shaped by a complex interplay of environmental values and cost savings against significant barriers such as social stigma, quality and hygiene anxieties, and search inconveniences (Edbring et al., 2016; Sheeran and Webb, 2016). Therefore, synthesizing TPB with these extended motivators and specific barriers allows for a more nuanced analysis of why high pro-environmental intentions are often thwarted, offering a clearer explanation of where the cognitive-action link breaks down in circular consumption.

This cognitive-action breakdown highlights the crucial role of consumers in driving the CE transition, as their specific values and habits alter material flows and pressure firms to abandon linear models (Gomes et al., 2022; Lopes et al., 2023). To effectively address this gap, it is crucial to identify re-use motivations. Economic benefits and value for money remain the dominant drivers across product categories, while environmental motivations are typically secondary (Edbring et al., 2016; Frahm et al., 2025). However, second-hand purchasing also involves hedonic and symbolic motives, where consumers seek uniqueness to differentiate themselves from mass production (Edbring et al., 2016; Gilal et al., 2024; Slaton et al., 2024). These dynamics are category-specific: textile re-use peaks during economic uncertainty due to affordability (Badran et al., 2025), whereas furniture consumption often begins with online searches (Oblak et al., 2017) and suffers from premature, aesthetically driven replacement (Li et al., 2016).

Re-use adoption faces barriers that vary by channel and consumer experience. Offline settings discourage consumers due to search time, limited selection, and wear concerns (Harantová and Mazanec, 2025), whereas online channels amplify risks regarding seller reliability and product condition (Calvo-Porrall et al., 2024). Across all channels, a prominent psychological barrier is the perceived contamination and hygiene stigma of previous users, triggering cleanliness and health concerns (Calvo-Porrall et al., 2024; Edbring et al., 2016; Gilal et al., 2024). These hygiene and functionality anxieties drastically reduce trust, particularly for inexperienced buyers and complex items (Aguiar et al., 2022; Cao et al., 2022; Vidal-Ayuso et al., 2023).

Social Dynamics and Consumer Segmentation

Social pressure and a lack of communal support moderate the adoption of re-use practices (Borusiak et al., 2020). This social dynamic is dual-faceted: while social media increasingly normalises second-hand consumption, a persistent stigma remains in certain segments where re-use is associated with lower socio-economic status (Gilal et al., 2024). Consequently, experienced buyers leverage sustainability values to justify their choices, whereas novices remain susceptible to social embarrassment (Costa e Silva et al., 2021). Although younger generations demonstrate greater openness when provided with transparent information on repairs and environmental impacts (Alves et al., 2022), post-purchase phases like long-term use and upcycling remain under-researched (Vidal-Ayuso et al., 2023).

To navigate these socio-behavioural complexities and address low circular awareness, consumer segmentation is essential to frame circular consumption within broader societal structures (Bucur, 2023; Henriques et al., 2026; Lopes et al., 2023). In general sustainability, Coskun et al. (2016) distinguish green (price-premium willing), inconsistent (price-parity driven), and red (sustainability-resistant) segments. In the second-hand context, these segments differ by purchase frequency, channel preference, demographics, and attitudes toward CE principles (Corboş et al., 2023). Ultimately, mitigating these segmental differences requires a holistic cultural, organisational, and political transformation rooted in collaboration among firms, institutions, and consumers (Fortuna and Diyamandoglu, 2017; Lingegård and Von Oelreich, 2023), supported by targeted education and clear corporate guidance on sustainable choices (Aguar et al., 2022; D'Adamo et al., 2024).

III. Materials and Methods

The empirical part of the research is based on primary data collected through a quantitative questionnaire survey, specifically designed to investigate consumer motivations, perceived barriers to re-use adoption, and the willingness to engage in circular consumption patterns. The specific wording of the questionnaire items and their respective response categories are available in Appendix Table A1. Data collection was conducted in the Czech Republic during the fourth quarter of 2025 employing the Computer-Assisted Web Interviewing (CAWI) method.

The research sample comprises 750 respondents, with quota sampling applied to ensure representativeness with respect to gender, age, and educational attainment. To ensure a rigorous recruitment process and enhance the generalizability of the findings, the data collection was outsourced to a professional market research agency. Respondents were recruited from the agency's verified online access panel, where panel members undergo identity verification to prevent duplication and ensure data quality. The agency monitored the quotas gender, age and education to match the demographic distribution of the total population of the Czech Republic. Once a specific demographic category was fully saturated, further respondents matching that profile were automatically prevented from participating. A comparison between the sample and the target population is presented in the following table 1, offering context for the representativeness and generalizability of the findings. Participation in the survey was voluntary and anonymous.

Responses of the core questions were measured using a seven-point Likert scale (1 = strongly disagree; 7 = strongly agree). Data were analysed using descriptive statistics and cluster analysis, using consumer re-use motivations and barriers as the input variables for segmentation. To segment consumers, a two-step clustering procedure was applied using IBM SPSS Statistics (v. 29). First, Ward's hierarchical method with squared Euclidean distance and the elbow criteria determined the optimal number of clusters.

Table 1: Structure of respondents

	Questionnaire n = 750, [%]	CZSO, 2021 [%]
Gender		
Men	49.7%	49.3%
Women	50.3%	50.7%
Age group		
18–29 years	15.5%	15.1%
30–39 years	17.7%	15.7%
40–49 years	19.5%	18.7%
50–59 years	17.5%	17.6%
60 years and more	29.8%	32.9%
Highest level of education attained		
Primary	14.0%	14.0%
Secondary	68.3%	67.4%
Tertiary	17.7%	18.6%

Source: Own questionnaire, n = 750 (2025), CZSO (2021), CZSO (2025)

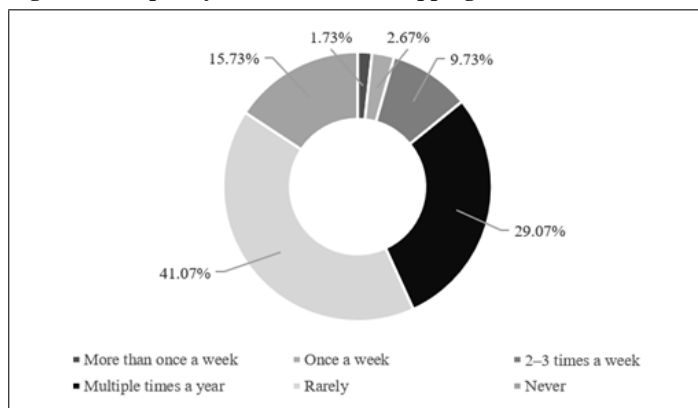
Second, using the cluster centroids from Ward’s method as initial seeds, the non-hierarchical K-means algorithm was applied to the dataset. This non-hierarchical clustering approach is advantageous for large datasets (Greene, 2018). Following Hebák (2015), the algorithm minimises the following objective function (1):

$$f_{KP} = \sum_{h=1}^k \sum_{i=1}^n u_{ih} \|x_i - \bar{x}_h\|^2, \quad (1)$$

where the $u_{ih} \in \{0, 1\}$ elements indicate whether the i -th object belongs (value 1) or doesn’t belong (value 0) to the h -th cluster. To validate the final cluster solution, a one-way ANOVA test was applied to evaluate the statistical significance of differences between the identified segments (significance level of $\alpha = 0.05$).

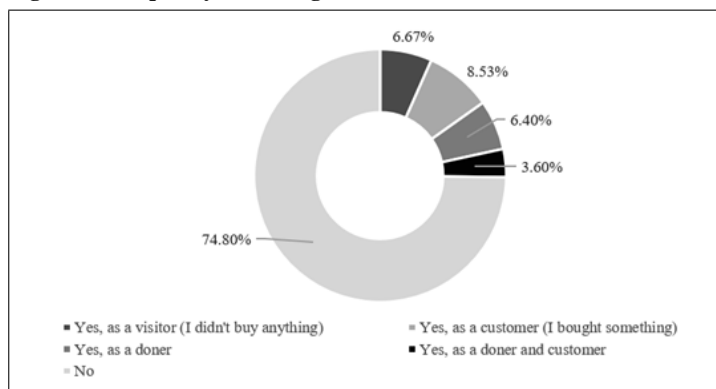
IV. Results

The initial phase of the quantitative analysis focuses on the existing circular patterns within consumer behaviour, specifically regarding the acquisition of pre-owned goods and the utilisation of specialised re-use infrastructure. The data from the representative survey indicate that a circular consumption remains a peripheral habit for most of the consumers. Only a 4.4% of the sample shops in this manner on a weekly basis. The most significant proportion of the sample, representing 41.07%, reports that they purchase such goods “rarely”. Furthermore, a notable 15.73% of the participants state they never purchase second-hand products (Figure 1).

Figure 1: Frequency of second-hand shopping

Source: Own questionnaire, $n = 750$ (2025)

To evaluate circular infrastructure utilization, this study focuses on the engagement of consumers with re-use centres, revealing a profound gap between policy objectives and reality, as 74.80% of respondents have never visited such a facility (Figure 2). Amongst the remaining quarter of the sample that has interacted with these centres, 8.53% attended solely as customers and 6.67% visited without making a transaction.

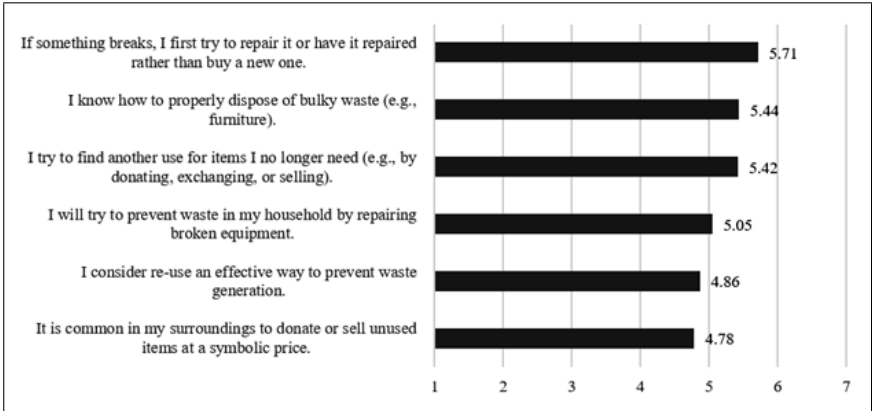
Figure 2: Frequency of visiting a re-use centre

Source: Own questionnaire, $n = 750$ (2025)

Consumer Attitudes, Social Norms, and Behavioural Intentions

Analysis of consumer attitudes (Figure 3) reveals a strong individual inclination towards repair, with the highest agreement observed for attempting repairs over purchasing new items (5.71). Conversely, the lowest score relates to social norms (4.78), suggesting that while individual intentions are high, the lack of perceived social standard may act as a barrier to wider habit adoption.

Figure 3: Attitudes and intentions towards re-use

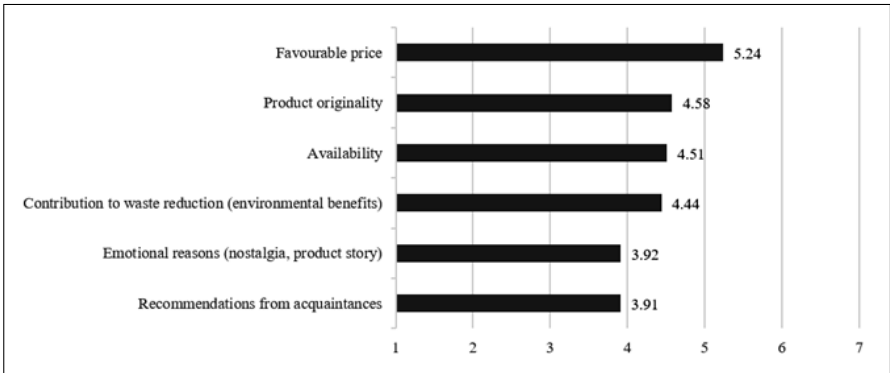


Source: Own questionnaire, n = 750 (2025)

Motivations and Barriers

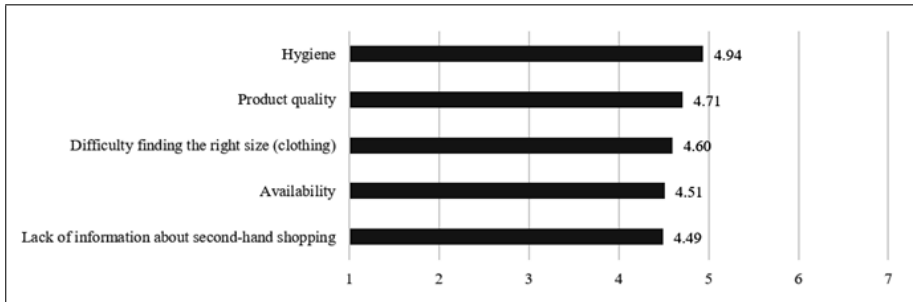
The survey results indicate a clear hierarchy of motivations, where economic drivers significantly outweigh environmental and social considerations (Figure 4). A favourable price emerges as the primary motivator (5.24). Environmental benefits achieved only a moderate score, while social and emotional aspects, including nostalgia and peer recommendations, were identified as the least influential.

Figure 4: Motivations for purchasing re-use products



Source: Own questionnaire, n = 750 (2025)

Regarding obstacles, distrust and hygiene concerns emerge as the most substantial psychological barriers, followed closely by quality apprehensions and practical limitations such as sizing issues in textiles (Figure 5). Notably, product availability acts as a double-edged sword, serving simultaneously as a motivator and a moderate barrier when its presence or convenience is perceived as deficient.

Figure 5: Barriers for purchasing re-use products

Source: Own questionnaire, $n = 750$ (2025)

Consumer Segmentation

Based on the varying levels of agreement with these motivators and barriers, the respondents were segmented into three distinct consumer profiles, each exhibiting a unique relationship with circular practices (Table 2).

Table 2: Consumer Segments

Cluster	1	2	3	F	Sig.
Respondents	19%	34%	47%		
M: Contribution to waste reduction	2.90	5.62	4.22	138.256	< 0.001
M: Favourable price	3.71	6.22	5.18	128.163	< 0.001
M: Product originality	2.53	5.85	4.51	303.689	< 0.001
M: Availability	2.58	5.70	4.48	270.388	< 0.001
M: Recommendations from acquaintances	1.95	5.15	3.83	230.613	< 0.001
M: Emotional reasons	1.92	5.09	3.89	218.166	< 0.001
B: Hygiene	6.34	5.62	3.85	181.35	< 0.001
B: Difficulty finding the right size (clothing)	5.49	5.45	3.62	131.331	< 0.001
B: Product quality	5.92	5.39	3.69	206.286	< 0.001
B: Availability	5.13	5.34	3.63	109.922	< 0.001
B: Lack of information	5.15	5.34	3.60	103.677	< 0.001

Source: Own processing of a questionnaire, $n = 750$ (2025) in the IBM SPSS Statistics

Cluster 1: Sceptics with High Barriers (19%, $n = 146$)

This smallest segment is characterized by a profound lack of motivation to engage in re-use behaviour. On the 1–7 Likert scale, all their motivational factors fell below the value of 3, with the sole exception of a favourable price. Concurrently, this group perceives the highest barriers among all segments. The primary deterrent for these consumers is hygiene (6.34), followed closely by concerns about product quality. For this group, the perceived risks

significantly outweigh any potential benefits. In terms of the sociodemographic profile, consumers aged 60 and older are overrepresented in this segment, particularly old-age pensioners in terms of their economic activity. Individuals living alone or as a couple also show a higher presence here. This segment thus represents the older and more cautious part of the population, exhibiting the highest degree of distrust toward re-use.

Cluster 2: Highly Motivated but Cautious (34%, n = 255)

This segment represents highly motivated consumers who express the strongest agreement with all motivational factors. The absolute strongest driver for this group is a favourable price (6.22), followed closely by product originality and availability. Environmental aspects, such as the contribution to waste reduction, are also highly valued. Interestingly, despite their high motivation, these consumers remain acutely aware of potential obstacles, rating hygiene (5.62) as a substantial barrier. In practice, this is a segment with a strong re-use orientation that nevertheless requires reassurance in the purchasing process through guarantees, transparent descriptions, and a simple, verifiable system. Compared to the sociodemographic profile of the sample, women are overrepresented in this segment (56.1% compared to 50.3%), as are younger age groups especially respondents under 40 and households with children. Respondents from smaller municipalities also have a slightly higher representation. This cluster consists of consumers who are inclined toward re-use both in terms of values and practice yet still require a higher degree of certainty and credible information.

Cluster 3: Pragmatic Realists (47%, n = 349)

The largest segment exhibits moderate and pragmatic attitudes. Their motivations are generally lower than those of Cluster 2, with a favourable price being their primary driver. Most notably, this group is characterized by the lowest perception of barriers across all analysed items. These consumers do not perceive hygiene or lack of information as major obstacles, indicating an unconcerned and convenient approach to re-use consumption. From a practical standpoint, this is the key market segment, which can be effectively addressed by emphasising convenience, clarity of the offer, availability, and a smooth purchasing process. Regarding identification, this cluster most closely corresponds to the overall sample structure, although individuals in middle age and employed respondents appear slightly above average.

To translate the cluster analysis into practice, the identified segments were mapped against targeted interventions. Table 3 operationalizes differences among segments with communication guidelines and concrete actions for re-use centres. While the older, resistant segment (S1) requires institutional hygiene seals, the younger, value-driven group (S2) demands e-commerce platforms and functionality guarantees. Finally, mobilizing the largest, middle-aged segment (S3) depends strictly on maximizing retail convenience, expanding opening hours, and minimizing transaction time.

Table 3: Targeted Policy and Management Recommendations by Consumer Segment

Consumer Segment	S1: Sceptics with High Barriers	S2: Highly Motivated but Cautious	S3: Pragmatic Realists
Core Attitude	Strong resistance, high distrust, and prominent hygiene fears.	High value-based inclination paired with an acute awareness of risks.	Driven primarily by convenience and price.
Demographic Profile	Older population, pensioners.	Younger population with children.	Middle-aged population, employed.
Communication	Acknowledge and deconstruct risks. Focus strictly on safety, standards, and institutional credibility.	Emphasize transparency and value. Communicate environmental contributions alongside strict quality standards and product history.	Highlight simplicity and economic benefits. Use straightforward, action-oriented messaging focused on savings and ease of access.
Actions for re-use centres	* Introduce certified sanitization/cleaning processes for items. * Display visible safety and hygiene seals on goods.	* Provide transparent item descriptions. Implement digital solutions allowing consumers to browse and purchase items online. * Offer short-term guarantees or exchange policies for items.	* Maximize retail convenience (e.g., clear shop layout). * Optimize location accessibility, extend operating hours, and streamline donation and purchasing process to minimize time.

Source: Own processing based on a questionnaire, $n = 750$ (2025)

V. Discussion

Even though most participants show a positive attitude towards the CE, repairs of products, and the re-use of resources, this is not consistently reflected in their everyday behaviour. Most respondents reported that they rarely purchase second-hand goods, and nearly three-quarters of participants had never visited a re-use centre. This low level of engagement highlights the persistent attitude-behaviour gap where environmental awareness fails to translate into (Bucur, 2023; Lopes et al., 2023). From a public administration perspective, these findings suggest that the development of re-use infrastructure cannot be reduced to their physical existence. Their territorial location, integration into urban functions, and overall accessibility for residents are decisive for overcoming consumer inertia.

A deeper interpretation of our primary data reveals a dynamic interaction between economic motivators and risk-related barriers. While financial savings emerge as the primary driver for second-hand purchasing, confirming the findings of Rodrigues et al. (2023), this economic incentive does not function in a vacuum. Instead, it is continuously neutralized by intense concerns regarding quality and hygiene.

This interaction creates an accessibility-trust paradox: consumers are attracted by the affordability and uniqueness of re-use goods, also confirmed by Gilal et al. (2024), yet they withdraw due to traces of previous users, in accordance with Harantová and Mazanec

(2025) and Calvo-Porrall et al. (2024). The newest data in agreement with Frahm et al. (2025) and Edbring et al. (2016) shows that environmental benefits are secondary and rarely strong enough to override these entrenched hygiene fears. Therefore, a low price acts as a motivator only if the baseline threshold of psychological safety and quality assurance are met. If a consumer experiences high uncertainty regarding a product's functionality or cleanliness, the economic benefit loses its conversion power, locking the consumer out of the circular market. However, growing corporate adoption of circular models raises concerns about whether these shifts represent genuine strategic change or merely greenwashing. As highlighted by Dvouletý et al. (2026), preventing greenwashing requires robust accountability and auditing frameworks. For re-use centres, this underscores the need to complement promotional efforts with transparent, verifiable impact metrics to maintain consumer trust.

The results of the cluster analysis further explain that the consumer population is not homogeneous, aligning with Coskun et al. (2016) regarding environmental orientation and price sensitivity. However, by looking at how barriers and motivations intersect within clusters, we can propose highly specific operational interventions for public administrations and re-use operators: The first segment called Sceptics with High Barriers presents the highest resistance, as their motivations are entirely suppressed by distrust and hygiene fears. To lower these barriers, communication must focus strictly on safety, and institutional credibility. Re-use centres should introduce certified sanitization and cleaning processes, accompanied by displaying visible safety and hygiene seals on goods. This validation is crucial to deconstruct perceived risks and decouple the re-use experience from the stigma of uncleanness (Gilal et al., 2024). The second segment called Highly Motivated but Cautious expects providing of transparent item descriptions and offering short-term guarantees. Furthermore, because this younger cohort prioritizes time efficiency, centres must implement digital solutions allowing consumers to browse and purchase items online. The third segment is heavily weighted toward effort minimization, as they are driven by convenience and price. Operationally, re-use centres must maximize retail convenience, such as establishing a clear shop layout, to mimic standard retail experiences.

VI. Conclusion

The present study extends the theoretical framework of the CE and sustainable consumer behaviour by analysing the intention-behaviour gap and identifying three distinct consumer segments: Sceptics with High Barriers, Highly Motivated but Cautious, and Pragmatic Realists. The empirical findings reveal a profound discrepancy between high environmental awareness and actual action, as overwhelming majority of the population remaining completely unengaged with physical circular infrastructure. Our analysis confirms that financial incentives alone fail to trigger action because they are constantly overridden by consumers' deep concerns regarding cleanliness and product standards.

The cluster analysis demonstrates that the consumer population is highly heterogeneous, showing that the transition to circularity depends on a specific combination of perceived risks and sociodemographic characteristics. To bridge this gap, public administrations and re-use operators must abandon one-size-fits-all campaigns and deploy segment-specific

interventions. While the findings offer relevant insights for policymakers, they should be interpreted as indicative, acknowledging their limitations and the opportunities for further research.

This pilot study focuses specifically on the Czech market; its findings may reflect regional infrastructural and cultural specifics. Consequently, future research could extend this framework to other countries to provide a cross-national comparison. Future research could adopt objective environmental metrics, such as Life Cycle Assessment (LCA) indicators, and utilize validated psychometric scales to measure Theory of Planned Behaviour constructs. Additionally, incorporating longitudinal sales data would help track actual consumer actions rather than intentions alone.

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Appendix

Table A1: Survey Questionnaire Items and Measurement Scales

Question	Options	
How often do you purchase second-hand products?	More than once a week Once a week 2–3 times a month Multiple times a year Rarely Never	
Do you have experience visiting a re-use centre?	Yes, as a visitor (I didn't buy anything) Yes, as a customer (I bought something) Yes, as a doner Yes, as a doner and customer No	
Please indicate your level of agreement with the following statements:	It is common in my surroundings to donate or sell unused items at a symbolic price. I consider re-use an effective way to prevent waste generation. I will try to prevent waste in my household by repairing broken equipment. I try to find another use for items I no longer need (e.g., by donating, exchanging, or selling). I know how to properly dispose of bulky waste (e.g., furniture). If something breaks, I first try to repair it or have it repaired rather than buy a new one.	1–7 Likert scale (1 = Strongly disagree no, 7 = Strongly agree)
What motivates you to purchase second-hand products?	Contribution to waste reduction Favourable price Originality of products Availability Recommendations from acquaintances Emotional reasons (nostalgia, product backstory)	1–7 Likert scale (1 = Definitely no, 7 = Definitely yes)
What discourages you from purchasing second-hand products?	Hygiene Difficulty finding my size in clothing Product quality Availability Lack of information about second-hand shopping options	Likert scale (1 = Definitely no, 7 = Definitely yes)
What is your gender?	Male Female	

Question	Options
What is your age category?	18–29 years 30–39 years 40–49 years 50–59 years 60 years and over
What is your highest level of completed education?	Primary education Secondary education Tertiary (university) education
What is your economic activity?	Employee Self-employed Unemployed Student On maternity or parental leave Old-age pensioner Other
What is your municipality size?	Up to 3,000 inhabitants 3,001–20,000 inhabitants 20,001–100,000 inhabitants More than 100,000 inhabitants

Source: Own processing