Responsible Consumption as an Information and Communication Problem for Search Engines

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1. Introduction

Search engines increasingly function as infrastructures of everyday consumption: they shape what products become visible, comparable, and actionable, and therefore what kinds of choices are easiest to make (van der Sluis et al., 2025). Yet while growing numbers of consumers report wanting to buy in ways that align with environmental and social values, such concerns often fail to translate into purchase behaviour, a pattern well documented in research on the intention-behaviour gap (Carrington et al., 2014; Casais & Faria, 2022; Wiederhold & Martinez, 2018). This work-in-progress paper argues that this gap is not only a matter of consumer motivation, affordability, or market structure. It is also a problem of search.

Drawing on survey, task-based, eye-tracking, and query-taxonomy work, the paper develops this claim through two interlocking problems: an information problem of whether responsible-consumption evidence can be found at all, and a communication problem of whether it can be understood, trusted, and brought into the decision.

2. Responsible Consumption as an Information and Communication Problem

The information problem concerns how product knowledge is unevenly produced, surfaced, and ranked. Information asymmetries make secondary product information difficult to retrieve: sellers may withhold or obscure relevant details, while selective disclosure and greenwashing further distort visibility (Akerlof, 1970; de Freitas Netto et al., 2020; Spaniol et al., 2024). Information that helps sell products is abundant, legible, and optimized for retrieval. Information that helps scrutinize products is often fragmented, weakly standardized, technically expressed, and difficult to verify (van der Sluis et al., 2025; Wiederhold & Martinez, 2018). Much of the evidence consumers need is buried in lengthy documents, expressed through expert terminology, or located in sources that rarely surface in popular rankings (Evans & Peirson-Smith, 2018; Furnas et al., 1987; van der Sluis et al., 2025). These information asymmetries confront two classic IR challenges: a vocabulary problem between everyday consumer language and technical sustainability evidence, and a relevance-fairness problem in which critical but less prominent sources - such as NGO reports, audits, or regulatory materials - are disadvantaged by commercially shaped rankings (Fang et al., 2024; Furnas et al., 1987; van der Sluis et al., 2025). Although current shopping systems may not actively redirect users away from environmental or social information needs (Meier & Elsweiler, 2026), they are poorly equipped to support this asymmetric search space. As a result, e-commerce search still defaults to price, quality, convenience, and conversion, while responsible criteria remain difficult to express, retrieve, compare, and trust (Azzopardi & van der Sluis, 2024; van der Sluis et al., 2025).

The communication problem begins where retrieval alone ends. Even when relevant information is available, it often fails to become decision-relevant. This challenges the information-deficit logic that has long shaped sustainability communication: the assumption that consumers will make better or more

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responsible choices if only they are provided with more facts (Lorenzoni et al., 2007; Suldovsky, 2017). Prior work instead shows that what matters is sense-making: whether information can be integrated into people's goals, values, and decision contexts (O'Rourke & Ringer, 2016; Papaoikonomou et al., 2018). In sustainable consumption, labels, prompts, and eco-tags often reproduce the same logic, yet are frequently absent, overlooked, or dismissed as irrelevant or redundant (Annunziata et al., 2011; Schubert, 2017). More broadly, search shapes a user's knowledge context: it can reinforce premature certainty by foregrounding familiar signals such as price and reviews, or surface missing dimensions and raise awareness of knowledge gaps (Alba & Hutchinson, 2000; Smith & Rieh, 2019). Our task-based work extends this critique by showing that search changed consumers' minds not because ethically minded users simply searched more, but because some users recognized a decision-relevant gap in their knowledge and could make sense of the information they encountered (Azzopardi & van der Sluis, 2024; van der Sluis & Azzopardi, 2025). Contextualisation and sense-making are therefore central: the key question is not whether systems can provide more sustainability information, but whether they can make that information enter the decision.

3. Responsible Consumption as Value-Driven Search

Responsible consumerism is commonly understood as aligning purchases with personal and moral beliefs, but the relevant values are heterogeneous rather than fixed (Carrington et al., 2014). Consumers differ markedly in the concerns they prioritize, and these priorities do not form a single stable profile (Casais & Faria, 2022; Hasanzade et al., 2018). In our survey of 601 consumers, 29.09% fell into a low ethically-minded cluster, 43.72% into a moderate cluster, and 27.19% into a high cluster; crucially, the largest group expressed mixed and selective concerns rather than a coherent ethical orientation (van der Sluis et al., 2025). The challenge is therefore broader than supporting a fixed class of "responsible consumers." It is about what values people are actually able to optimize for in everyday decision making, and whether search systems allow such values to become visible, searchable, and actionable.

LLM- and RAG-based shopping assistants already illustrate how product search can shift from ranked lists toward conversational goal articulation and explanation-centred support (de Freitas & Lotufo, 2024; Guan et al., 2024; Tang et al., 2025). These systems may reproduce the commercial priorities of existing e-commerce search, but they also create a new possibility: helping users articulate values, recognize what they do not yet know, and compare products on more than price alone (van der Sluis et al., 2025). Recent eye-tracking work on conversation-style sustainability explainers suggests why this matters: longer, evidence-rich explanations elicited deeper processing, higher willingness-to-pay, and greater perceived credibility when they clarified how a purchase would have impact (Sangoi & van der Sluis, 2026). In principle, such systems could combine retrieval with source-cited explanations, concise trade-off summaries, and counterfactual explanations that clarify what may be at stake when certification or other credible evidence is absent. Whether that potential is realized is not simply a technical design question. It is a societal question about what kinds of consumption search systems are built to support, and whose values are allowed to count as relevant.

Responsible consumption is thus a critical test case for search-engine research. If online shopping is one of the most commercially important domains in IR, why has so much work focused on helping platforms sell more efficiently, while so little has addressed how search might help people consume more responsibly? Part of the answer is structural: IIR work on commercial search often depends on platform access, industry collaboration, and company-defined problem settings (Lewandowski et al., 2020). The asymmetry is visible in the field's own agenda: online shopping has long been treated as a commercially oriented search task, and e-commerce research has largely been framed around the business-sided problems of advertising, engagement, and conversion (Broder, 2002; Ghose et al., 2014; Tsagkias et al., 2021). Taking value-driven consumption seriously therefore requires more than critique. It requires a research programme that maps missing and biased evidence, adapts retrieval models to sustainability language and fairness constraints, tests communication formats that support contextualisation and sense-making, and develops assistants that can surface, explain, and compare value-laden product attributes at the moment of choice (van der Sluis et al., 2025). At stake is not only

value-driven consumption, but value-driven research: what search systems make visible, intelligible, and actionable reflects what the field has chosen to optimize for.

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