Digital Transparency and Consumer Awareness: Digital Platforms for Educating Consumers about Product Origins and Sustainability

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Abstract. This paper investigates the role of digital transparency in enhancing consumer awareness of product origins and sustainability. As consumers increasingly seek to make informed, ethically aligned purchasing decisions, digital platforms - such as blockchain-enabled systems, mobile apps, and e-commerce sites - offer a medium for brands to communicate supply chain transparency. Through a comprehensive literature review, this article examines how transparency practices impact consumer trust, decision-making, and the adoption of sustainable products. Findings reveal that while digital platforms can significantly influence ethical consumption, their effectiveness depends on the clarity, accessibility, and perceived credibility of information presented. Key challenges, including greenwashing and information overload, can hinder transparency efforts, thereby reducing consumer trust. Additionally, stakeholder theory and the theory of planned behaviour provide insights into the ethical responsibilities of brands and the cognitive factors shaping consumer choices. Practical recommendations are offered, including the need for simplified, interactive transparency tools and collaboration with third-party certifiers to enhance authenticity. The study highlights the importance of evolving digital transparency practices to meet the ethical demands of modern consumers and suggests ways for future research to explore the impact of transparency across diverse consumer segments and regions.

Key words: Consumer awareness, digital platforms, digital transparency, sustainability.

Abstrak. Di dunia yang saling terhubung secara global, memahami perjalanan produk dari asal hingga sampai ke tangan konsumen telah menjadi rumit dan tidak jelas, sehingga menjadi tantangan tersendiri bagi konsumen untuk membuat pilihan yang terinformasi dan beretika. Platform digital menawarkan solusi potensial untuk tantangan ini dengan menyediakan akses ke informasi yang luas tentang asal-usul dan keberlanjutan produk. Namun, masih ada kesenjangan dalam memahami kemanjuran, desain, dan dampaknya. Makalah ini menyelidiki bagaimana transparansi digital dapat meningkatkan kesadaran konsumen tentang asal-usul dan keberlanjutan produk. Penelitian ini menyoroti permintaan transparansi pada konsumen modern, peran platform digital dalam memfasilitasi transparansi, tantangan yang terkait dengan informasi yang berlebihan dan kredibilitas, dampaknya terhadap perilaku konsumen, dan implikasi yang lebih luas untuk bisnis dan kebijakan. Metodologi penelitian ini menggunakan analisis data sekunder, dengan memanfaatkan literatur yang ada dan laporan industri untuk memberikan wawasan. Temuan ini menunjukkan potensi transformatif dari platform digital dalam meningkatkan kepercayaan konsumen, tetapi juga menggarisbawahi tantangan terkait keamanan data dan adopsi perusahaan yang lebih kecil. Secara keseluruhan, penelitian ini menggarisbawahi pentingnya transparansi digital dalam membentuk dinamika yang berkembang antara merek dan konsumen di era konsumerisme yang sadar dan kepedulian terhadap keberlanjutan.

Kata Kunci: Keberlanjutan, kesadaran konsumen, platform digital, transaparansi digital.

INTRODUCTION

The growing concern over environmental and ethical impacts in production has led to increasing consumer demand for transparency (Portes et al., 2020). Today's consumers are not merely interested in the end product but are increasingly concerned with the origins, production processes, and overall sustainability of the goods they purchase (Mason et al., 2023). This interest in transparent supply chains aligns with a broader global shift towards sustainability and corporate responsibility, where consumers use their purchasing power to support businesses that align with ethical practices (Carroll et al., 2018). Digital platforms have thus become instrumental in offering this transparency by enabling companies to disclose information about their products, including sourcing, labour practices, and environmental impact (Harrison and Freeman, 2017).

Digital transparency is often defined as the availability and accessibility of accurate, comprehensive, and timely information provided by organisations, allowing consumers to make informed choices (Kaplan and Haenlein, 2010). According to recent studies, transparency practices influence not only consumer trust but also brand loyalty, as consumers feel more connected to brands that openly share information (Hudders et al., 2019). However, there remains a gap in understanding how effectively digital platforms educate consumers about sustainability and whether this information significantly impacts consumer behaviour (Damberg et al., 2024).

Although consumer interest in sustainability is rising, research suggests that consumers frequently face challenges in accessing reliable and straightforward information regarding product origins and ethical practices (Davies et al., 2012). This information asymmetry hinders their ability to make informed, ethical choices, despite a willingness to do so. The problem is further exacerbated by the complexity of supply chains, particularly for companies with extensive international sourcing (Spence and Rinaldi, 2014). While digital platforms hold potential for delivering transparency, the actual effectiveness of these platforms in educating and empowering consumers is not well-documented in the literature (Kapferer and Michaut-Denizeau, 2014).

Digital platforms such as mobile applications, e-commerce websites, and social media provide a medium for companies to communicate essential product information. These platforms can bridge the information gap, offering a space where consumers can access details about the environmental and social footprints of products (Henriques and Richardson, 2004). However, despite this potential, consumers often struggle to distinguish between genuine transparency and 'greenwashing', a practice where companies mislead consumers regarding their environmental practices (Mondejar et al., 2021; Parguel et al., 2011). Therefore, this paper seeks to examine the role of digital platforms in enhancing consumer awareness of product origins and sustainability. Specifically, it will explore the potential of these platforms to provide verifiable and accessible information that enables consumers to make ethical and environmentally conscious purchasing decisions.

This research will assess the current landscape of digital transparency tools and identify key challenges that limit their effectiveness in educating consumers. By focusing on digital platforms, this study aims to contribute to the academic discourse on sustainable consumption and transparency, with practical implications for policymakers, businesses and platform developers. To address the overarching goal of this research, the following questions will guide the analysis: (1) How do digital platforms currently support transparency regarding product origins and sustainability? (2) To what extent does transparency impact consumer purchasing decisions related to sustainability? (3) What are the barriers to effective digital transparency in educating consumers, and what strategies could mitigate these challenges?

LITERATURE REVIEW

Digital Transparency and Its Evolution in Consumer Markets

Digital transparency has gained prominence as consumers increasingly demand insight into product origins and corporate practices (Raihan, 2024; Pavlou and Gefen, 2004). Defined as the degree to which companies openly share information that impacts stakeholder decisions, transparency is instrumental in fostering trust and loyalty (Portes et al., 2020). Digital transparency, specifically, includes practices such as the disclosure of supply chain processes, ethical certifications, and environmental impacts, often facilitated by technology (Auger et al., 2003). Scholars argue that digital transparency, when adequately implemented, can create competitive advantages by differentiating ethical brands from competitors (Porter and Kramer, 2011).

Early research highlights transparency as a tool to alleviate the risks of information asymmetry between consumers and companies (Bachmann et al., 2015). For instance, Pavlou and Dimoka (2006) emphasize that transparency serves as a bridge in digital markets, where consumers rely on intangible cues to assess credibility. In this context, transparency is more than a communicative practice; it acts as a strategic mechanism that businesses leverage to address growing concerns over ethical consumption (Graham and Ward, 2011). However, implementing transparency is complex and requires not only accurate information but also technological platforms that ensure information accessibility and reliability (Gong et al., 2012).

Consumer Awareness in the Context of Sustainability

Consumer awareness regarding sustainability reflects a deeper shift towards ethical consumption, where individuals seek to understand and mitigate the environmental and social impacts of their purchases (Buerke et al., 2016; Galbreth and Gosh, 2012). Research suggests that consumer awareness is influenced by factors such as education level, social influences, and exposure to ethical marketing (Ju et al., 2021; Ishak and Zabil., 2012). Buerke et al. (2016) argue that awareness is a prerequisite for sustainable behaviour, as consumers must understand the implications of their purchases to make ethically aligned decisions.

Studies demonstrate that increasing transparency can enhance consumer awareness by providing accessible information that guides purchasing choices (Simintiras et al., 2015). According to Lang et al. (2023), consumer awareness in sustainability contexts extends beyond individual action and represents a collective movement toward holding companies accountable. This collective consumer stance has prompted businesses to adopt sustainable practices and communicate these efforts through digital platforms. Nevertheless, the effectiveness of these platforms in truly educating consumers remains a subject of debate, as access to information does not necessarily equate to informed decision-making (Carrington et al., 2010).

The Role of Digital Platforms in Fostering Transparency and Education

Digital platforms, including websites, mobile apps, and blockchain technology, play a pivotal role in promoting transparency (Kshetri, 2018). Blockchain, for instance, has been lauded for its potential to enhance transparency by providing immutable records of transactions across supply chains (Kamath, 2018). This technology ensures that consumers can verify claims regarding product origins and authenticity. Moreover, platforms leverage blockchain to offer end-to-end visibility, which has led to increased consumer trust in digitally transparent brands (Hastig and Sodhi, 2020).

Additionally, platforms such as social media and e-commerce websites serve as interactive spaces where consumers can access product information, engage with brands, and even scrutinise business practices (Kaplan and Haenlein, 2010). This dynamic creates a dual role for platforms as both information providers and spaces for dialogue (Saini et al., 2021). However, while these platforms offer considerable potential, challenges related to information overload and credibility persist. According to Yang et al. (2020), consumers often struggle to differentiate genuine transparency from

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"greenwashing," as some brands exploit transparency as a superficial marketing tool without substantial ethical backing.

Challenges to Digital Transparency and Consumer Education

While digital transparency holds significant promise, its implementation faces multiple obstacles. One major issue is the complexity of supply chains, particularly for multinational companies whose products pass through numerous intermediaries (Marano et al., 2024). The opacity of these processes often hinders accurate information dissemination, making it difficult for companies to verify the sustainability of all practices involved. For instance, in the textile industry, ensuring fair labour practices throughout the supply chain is challenging, yet vital to achieving transparency (Caniato et al., 2011; Bateman and Bonanni, 2019).

Moreover, greenwashing remains a significant concern, as it undermines consumer trust and reduces the perceived legitimacy of digital transparency efforts (Delmas and Burbano, 2011). Greenwashing occurs when companies misrepresent their environmental practices, often by exaggerating or selectively disclosing information. This deception can distort consumer perceptions, leading them to support brands based on misleading claims rather than genuine transparency. Consequently, understanding the mechanisms behind greenwashing is essential to developing regulatory frameworks that enforce transparency standards.

Theoretical Frameworks and Perspectives on Digital Transparency and Sustainability

To contextualise digital transparency and consumer awareness in academic discourse, a stakeholder theory perspective is applied. Stakeholder theory, for instance, posits that businesses have responsibilities beyond profit maximisation, extending to various stakeholders, including consumers, employees and communities (Freeman et al., 2010). Transparency serves as a mechanism for fulfilling these responsibilities, as it aligns company actions with stakeholder expectations (Donaldson and Preston, 1995).

Another relevant framework is the theory of planned behaviour, which suggests that consumer intentions are influenced by attitudes, subjective norms, and perceived behavioural control (Ajzen, 1991). In the context of digital transparency, this theory suggests that consumer intentions to engage in sustainable behaviour are shaped by their perceptions of transparency and the ease with which they can access credible information (Vermeir and Verbeke, 2008). This perspective supports the argument that digital platforms must not only provide information but also ensure it is easily comprehensible and accessible to influence consumer behaviour effectively.

METHOD

This study adopts a qualitative research design, relying on secondary data to explore how digital platforms contribute to transparency and consumer education in sustainability. The study draws upon a wide array of academic articles, industry reports, and case studies to assess current practices, theoretical frameworks, and challenges in digital transparency. Specifically, a systematic literature review was conducted to identify, evaluate, and synthesise relevant studies on digital transparency, consumer behaviour, and sustainability.

To maintain relevance and credibility, the study only included peer-reviewed journal articles and reputable industry reports, and credible case studies from the past two decades (2000–2024). The inclusion criteria ensured that selected sources are directly related to topics such as digital transparency, consumer awareness, sustainability, and digital platforms. Studies focusing on unrelated areas or with outdated contexts were excluded to ensure the literature aligns closely with contemporary digital practices. Secondary data was gathered from academic databases and industry-specific databases for sustainability-related publications. Key search terms included digital

transparency, consumer awareness in sustainability, digital platforms for sustainability education, and ethical consumer behaviour.

Thematic analysis has been employed to identify recurring themes and patterns within the existing research on digital transparency and consumer education. Thematic analysis allowed for an organised approach to categorising and analysing secondary sources, ensuring that significant insights and gaps are identified (Braun and Clarke, 2006). Themes covered areas such as transparency practices and tools used by digital platforms, the impact of transparency on consumer trust and ethical decision-making, challenges and limitations associated with digital transparency, such as greenwashing.

Moreover, a secondary analysis of case studies was conducted to compare different digital platforms' approaches to transparency. Case studies, such as those on Provenance, IBM Food Trust, and similar platforms, provided practical insights into how transparency is operationalised in real-world settings (Yin, 2018). Moreover, this literature-based study applied stakeholder theory and the theory of planned behaviour to examine how digital transparency influences consumer awareness and decision-making. Stakeholder theory helped contextualise transparency as a corporate responsibility toward consumers, while the theory of planned behaviour shed light on how transparent information impacts consumer attitudes and behaviours (Ajzen, 1991; Freeman, 1984). These frameworks provide a theoretical basis for interpreting secondary data and contribute to a structured analysis of how digital platforms can enhance sustainability awareness.

Limitations

While secondary research offers valuable insights, it is inherently limited by the availability and quality of existing studies. This approach depends on published literature and may lack insights into recent, undocumented developments in digital transparency technologies. Additionally, relying on secondary data may introduce biases if studies disproportionately represent certain regions or industries (Johnston, 2014). These limitations are acknowledged to provide context for the scope of the study and potential areas for future research.

RESULTS AND DISCUSSION

Digital Platforms as a Tool for Transparency

The review of literature reveals that digital platforms serve as a powerful medium for brands to disclose their product origins, practices, and sustainability initiatives. Studies highlight the versatility of digital tools like blockchain, QR codes, and mobile apps in offering consumers transparency about product sourcing and ethical practices (Hastig and Sodhi, 2020). For instance, Provenance and IBM use blockchain to trace supply chains, thereby verifying the sustainability claims that companies make (Kshetri, 2018)

However, while the technology provides a mechanism for transparency, consumer awareness and trust in these systems vary widely (Rogers, 2023). According to Boehm et al. (2022), digital transparency enhances consumer trust only when users perceive the information as credible and accessible. Platforms that make this information easy to interpret - such as the integration of certification icons, straightforward language, and visual representations of supply chain stages - are more effective in fostering consumer trust (Gong et al., 2012; Fazlioglu, 2023). This suggests that the mere presence of information does not equate to transparency; instead, information must be communicated in a consumer-friendly manner.

Impact on Consumer Awareness and Decision-Making

A recurrent theme in the literature is the effect of transparency on consumer awareness and decision-making. Transparency not only increases consumers' awareness of ethical practices but also influences their purchasing behaviour by fostering a preference for brands perceived as sustainable (Veltri et al.,

2020; Reyes, 2020). Consumers exposed to transparent supply chain information are more likely to identify and avoid brands associated with unethical practices, which is a behaviour that aligns with the ethical consumerism trend (Carrigan and Attalla, 2001).

Further, several studies highlight that informed consumers are more inclined to support sustainable products by suggesting that transparency encourages more mindful and ethical consumption (Sayogo et al., 2014). For instance, it is argued that consumers with access to detailed product origins are likely to factor sustainability into their decision-making, particularly when information is presented in an engaging, easily comprehensible format (O'Rourke and Ringer, 2015; Galbreth and Ghosh, 2012; Bangsa and Schlegelmilch, 2020). This trend is evident in industries where transparency is associated with health and environmental concerns, such as food, cosmetics, and apparel.

Challenges of Implementing Effective Transparency

Despite the positive impact of transparency on consumer awareness, significant challenges hinder the effective implementation of digital transparency on platforms. One major issue is the prevalence of greenwashing, where companies promote themselves as more environmentally friendly than they are. Greenwashing not only distorts consumer perceptions but also undermines trust in digital transparency initiatives (Lyon and Montgomery, 2015). Delmas and Burbano (2011) found that consumers who detect greenwashing become sceptical of all transparency claims, which can lead to an overall decline in trust toward sustainable brands.

Moreover, information overload is another concern. As digital platforms present increasingly detailed information, consumers may find it difficult to process, leading to confusion rather than clarity. According to Parguel et al. (2011), an overload of complex information can deter consumers from engaging deeply with the details, particularly when the information is presented in overly technical language or dense formats. Simplification and user-friendly designs are essential for digital platforms to overcome this barrier and present transparency in a way that educates without overwhelming (MacLean, 2008; Bangsa and Schlegelmilch, 2020).

Case Analysis of Digital Transparency Platforms

An analysis of case studies reveals that various platforms adopt different transparency strategies, each with unique strengths and limitations. For instance, Provenance, a platform using blockchain to authenticate supply chains, has successfully fostered consumer trust by offering immutable records of product origins (Provenance, 2024). This technology allows consumers to verify claims independently, reducing reliance on corporate self-reporting and mitigating potential bias (Kamath, 2018). In contrast, more mainstream platforms like Amazon integrate transparency features, but these are often overshadowed by promotional content, which may dilute the perceived authenticity of transparency efforts (Zhou and Piramuthu, 2015).

Moreover, platforms such as IBM Food Trust, which collaborates with retailers to trace food sources, highlight how partnership-based transparency initiatives can lead to industry-wide improvements in sustainability practices (Hastig and Sodhi, 2020). However, IBM Food Trust's dependence on complex blockchain infrastructure can limit accessibility, as smaller businesses may lack the resources to participate, leading to a transparency gap across different market segments (Kshetri, 2018). This divide underscores the need for scalable transparency solutions that accommodate both large and small players in the market.

Theoretical Implications: Stakeholder Theory and Planned Behaviour Theory

The findings align with stakeholder theory, which suggests that companies have an ethical responsibility to meet the information needs of their consumers (Freeman et al., 2010). By embracing transparency, companies address the concerns of stakeholders who increasingly prioritise ethical and sustainable practices. Transparency also supports the concept of shared value, as proposed by Porter and Kramer (2011), by aligning business success with social progress. Brands that promote

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transparency not only fulfil their ethical obligations but also build stronger and more loyal customer bases.

Additionally, the theory of planned behaviour provides insight into how transparency influences consumer intentions to engage in sustainable consumption. Ajzen's (1991) model posits that attitudes, subjective norms, and perceived behavioural control influence intentions. In this context, digital transparency enhances perceived behavioural control by providing consumers with the information needed to make informed decisions. As consumers perceive transparency as a norm within ethical markets, their intention to make sustainable choices strengthens which leads to more consistent alignment between attitudes and behaviours (Vermeir and Verbeke, 2008).

Consequently, several practical recommendations emerge from the literature and case analyses for digital platforms seeking to enhance transparency and consumer education. First, platforms should emphasize visual and interactive features, such as infographics, videos, and interactive maps, to simplify complex supply chain information and make it more accessible (Nguyen and Johnson, 2020). Incorporating tools like product tracking systems can further engage consumers by presenting transparency in a user-friendly and digestible format.

Second, to mitigate greenwashing, platforms should collaborate with reputable third-party organisations to verify and certify sustainability claims. Such certifications provide external validation, enhancing the credibility of transparency efforts (Dutta-Powell et al., 2023). Finally, platforms could segment information based on consumer preferences, tailoring content to different user groups. For instance, some users may prefer comprehensive, detailed reports, while others might seek concise overviews (Nicholas et al., 2006). Customising information delivery ensures that all users can access transparency data in a format that meets their needs.

Limitations and Future Research Directions

The reliance on secondary data poses certain limitations for this analysis. While the literature offers rich insights into digital transparency and consumer behaviour, it may not capture the latest technological advancements or regional differences in transparency practices (Zhang, 2024; Mirghaderi et al., 2023, Wang et al., 2023). Future research should consider longitudinal studies that track how transparency practices evolve and impact consumer trust over time. Additionally, empirical studies exploring the effects of transparency on diverse consumer segments could provide a more comprehensive understanding of the relationship between digital transparency and sustainable consumption.

CONCLUSION

This study explores the critical role of digital transparency in enhancing consumer awareness about product origins and sustainability. The literature reviewed highlights that, as consumers increasingly value ethical and sustainable practices, digital platforms serve as essential tools for brands to convey transparency. By providing information on sourcing, production, and environmental impact, digital platforms empower consumers to make informed, values-driven choices. However, for transparency to be genuinely impactful, it must go beyond mere information availability; it must prioritise clarity, credibility, and user accessibility.

Digital platforms that successfully educate consumers often employ user-friendly formats, interactive features, and third-party certifications, which help to mitigate issues such as greenwashing and information overload. These platforms, such as Provenance and IBM's Food Trust, demonstrate that digital transparency can foster trust and positively influence consumer decision-making when implemented effectively. At the same time, challenges like the complexity of supply chains, the persistence of greenwashing, and resource barriers for smaller businesses highlight that transparency remains a complex and evolving practice.

From a theoretical perspective, the application of stakeholder theory and the theory of planned behaviour offers valuable insights into how transparency can strengthen consumer-brand relationships and encourage sustainable consumption. As companies recognise the ethical responsibility they hold toward their stakeholders, digital transparency emerges as both a moral obligation and a strategic advantage by aligning corporate success with social and environmental progress.

For practitioners, this study suggests that transparency efforts must prioritise both depth and simplicity. Brands should seek scalable solutions that can adapt to the varying informational needs of their consumer base while actively collaborating with credible certifiers to enhance the authenticity of their sustainability claims. This approach can help mitigate the scepticism often associated with greenwashing and make ethical consumerism more accessible.

Future research could benefit from empirical studies exploring how different consumer segments interact with transparency information across varied cultural and market contexts. Additionally, as new technologies like blockchain continue to develop, research could examine how these innovations shape the future of transparency and consumer trust. Overall, digital transparency presents both challenges and opportunities, and as consumers grow more discerning, it will be increasingly critical for businesses to adopt transparency practices that genuinely inform and empower consumers toward more sustainable choices.

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