

## E-Commerce Transformation in the Digital Economy: A Conceptual Study of Business Trust, Transparency, and Sustainability

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### ABSTRACT

The expansion of e-commerce creates significant opportunities for value creation in the digital economy while raising concerns about information credibility, consumer trust, and business sustainability. Although transparency is commonly assumed to strengthen trust, its contribution depends on information quality and consumers' ability to assess disclosed claims. This article examines the conceptual relationship between transparency and trust and develops a framework linking these constructs to economic, social, and environmental sustainability. Using a qualitative approach, the study critically synthesises relevant empirical and conceptual literature by comparing construct definitions, objects of trust, relational mechanisms, and boundary conditions. The synthesis identifies three dimensions of transparency: transaction information, explanations of recommendation systems, and supply chain sustainability disclosures. Trust, meanwhile, concerns sellers, platforms, and recommendation systems. The relationship is conditional: relevant, understandable, and verifiable disclosures may strengthen credibility assessments, whereas discrepancies between claims and practices can generate perceptions of greenwashing. Consumer knowledge and information characteristics further shape these relationships. The proposed framework connects transparency practices, credibility assessments, trust formation, and sustainability outcomes, while distinguishing purchasing behaviour from demonstrable social and environmental impacts. Its contribution is to clarify conceptual boundaries and support multidimensional evaluation of disclosure practices and business performance. As the framework remains conceptually untested, future research should employ experiments, longitudinal designs, and direct impact measurements across sectors and national contexts to establish its empirical applicability.

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## INTRODUCTION

Digital business transformation has reshaped how firms create, deliver and capture value through technological integration, data utilisation and new relationships with consumers and business partners (Verhoef et al., 2021). Within this transformation, e-commerce has become an integral component of business-model change, encompassing customer experience, organisational capabilities and competitive configurations. Its success therefore cannot be adequately explained by transaction growth alone (Verhoef et al., 2021). The expansion of platform-mediated interactions has also made information quality and trust strategic concerns, as consumers must assess products, sellers and recommendations through digital representations that are not always readily verifiable (Ikhsan et al., 2024; Li et al., 2024). At the same time, digitalisation creates opportunities to advance sustainability, although the realisation of these benefits depends on how technologies are integrated into organisational objectives and practices (Guandalini, 2022). E-commerce transformation must consequently be examined through the interrelationships between trust, transparency and sustainability, enabling economic value creation to be considered alongside its social and environmental consequences (Guandalini, 2022; Schäfer, 2023).

Previous studies across national contexts suggest that information disclosure and trust are connected through mechanisms more complex than the mere provision of information (Li et al., 2024; Schultheiß & Lewandowski, 2023). In the Chinese e-commerce context, Li et al. (2024) demonstrate that the effect of recommendation-system transparency on trust involves perceived effectiveness and discomfort, with consumer knowledge operating as a boundary condition. In a study involving 479 consumers of green products, Ikhsan et al. (2024) identify positive relationships between online review quality, trust in reviews, review adoption and green purchasing behaviour. Meanwhile, a survey of 2,012 internet users in Germany reveals that high trust in Google can coexist with limited ability to recognise commercial influences on search results, although this study concerns the wider digital information ecosystem rather than e-commerce transactions directly (Schultheiß & Lewandowski, 2023). At the international synthesis level, a review of 153 articles identifies the relationship between digitalisation and sustainability as an area requiring further conceptual development, while a review of 92 articles reveals substantial variation in definitions of supply-chain transparency (Guandalini, 2022; Schäfer, 2023). Despite these contributions, comparison across studies reveals a gap in the integration of analytical levels: consumer trust, system transparency and organisational sustainability are investigated through distinct constructs and outcomes (Guandalini, 2022; Schäfer, 2023; Li et al., 2024). Research on recommendation systems explains trust formation in technology, whereas studies of green products emphasise information adoption and purchasing;

neither, in isolation, accounts for business sustainability in its entirety (Li et al., 2024; Ikhsan et al., 2024). Divergent definitions of transparency further complicate the distinction between the volume of information disclosed and the quality of information relevant to stakeholders (Schäfer, 2023). Moreover, evidence of high trust alongside limited information literacy challenges the assumption that greater trust necessarily reflects more accurate consumer judgement (Schultheiß & Lewandowski, 2023). Accordingly, this study addresses the need for a framework explaining the circumstances under which transparency fosters well-founded trust and how that relationship may support, without necessarily guaranteeing, the sustainability of e-commerce businesses (Guandalini, 2022; Schäfer, 2023; Li et al., 2024).

To address this gap, the study proposes a conceptual framework linking transparency practices, assessments of information credibility, trust formation and sustainability outcomes through a critical synthesis of the literature (Guandalini, 2022; Schäfer, 2023; Li et al., 2024). Operationally, transparency is differentiated into transactional information, explanations of recommendation systems and supply-chain sustainability disclosures, allowing the objects and intended recipients of disclosure to be identified (Verhoef et al., 2021; Schäfer, 2023; Li et al., 2024). Trust is subsequently distinguished according to its object, particularly sellers, platforms and recommendation systems, to avoid treating heterogeneous relationships within the e-commerce ecosystem as a single construct (Ikhsan et al., 2024; Li et al., 2024). Sustainability outcomes encompass economic, social and environmental dimensions; neither green-product purchasing nor greater technology acceptance is therefore regarded as sufficient evidence of overall business sustainability (Guandalini, 2022; Schäfer, 2023). The proposed contribution lies in integrating these constructs, mechanisms and boundary conditions into testable propositions, including the roles of consumer knowledge and information comprehensibility in the transparency-trust relationship (Li et al., 2024; Schultheiß & Lewandowski, 2023).

On this basis, the study aims to clarify the conceptual relationships between trust, transparency and sustainability in e-commerce transformation and identify the mechanisms connecting them (Guandalini, 2022; Schäfer, 2023; Li et al., 2024). The first research question asks: How are trust and transparency conceptualised and related within e-commerce ecosystems, particularly when digital information shapes credibility assessments and consumer decisions (Ikhsan et al., 2024; Li et al., 2024)? The second asks: Through which mechanisms and boundary conditions can the transparency-trust relationship be reconstructed into a conceptual framework supporting the economic, social and environmental sustainability of e-commerce businesses (Guandalini, 2022; Schäfer, 2023)? Addressing these questions is expected to yield theoretical propositions and a basis for evaluating digital business practices that connect information quality, well-founded trust and sustainable value creation (Guandalini, 2022; Schultheiß & Lewandowski, 2023).

## **METHODS**

This study is designed as qualitative research based on an integrative

literature review, employing a systematic search strategy and theory-synthesis design to develop a framework linking transparency, trust and e-commerce business sustainability (Jaakkola, 2020; Sauer & Seuring, 2023). This approach is appropriate because the objective is to integrate dispersed concepts and findings, evaluate inconsistencies between perspectives and formulate theoretical propositions rather than estimate effects using respondent-level data (Jaakkola, 2020). The analysis addresses two questions: how transparency relates to trust formation in e-commerce, and through which mechanisms and boundary conditions this relationship may support economic, social and environmental sustainability (Paul & Criado, 2020). The research setting consists of international digital scholarly resources, while the units of analysis are academic articles and their reported construct definitions, arguments and findings (Paul & Criado, 2020).

Data are collected from Scopus and the Web of Science Core Collection through title, abstract and keyword searches, covering publications from 2020 to 2026 up to the actual search date (Sauer & Seuring, 2023). The search strategy employs the Boolean expression ("e-commerce" OR ecommerce OR "electronic commerce" OR "online retail\*" OR "digital marketplace\*") AND (trust OR transparen\*) AND (sustainab\* OR "green business" OR "environmental performance" OR "social responsibility"), adapted to the syntax of each database (Sauer & Seuring, 2023). To identify bridging literature, supplementary searches combine e-commerce terms with transparency–trust, transparency–sustainability and trust–sustainability pairs, followed by backward and forward citation searching of selected sources (Paul & Criado, 2020). Database names, search dates, full expressions, filters and record counts for each search are documented to facilitate replication (Page et al., 2021).

The corpus is assembled through criterion-based selection of English-language journal articles with a DOI and accessible full text that examine at least one relevant relationship between constructs in an e-commerce context (Paul & Criado, 2020). Empirical, conceptual and review articles are eligible, whereas editorials, conference proceedings, duplicates, retracted publications and studies lacking substantive relevance are excluded (Paul & Criado, 2020). Journal quartiles are recorded as source characteristics, while evidential quality is assessed according to relevance, conceptual clarity, methodological transparency and the support provided for conclusions; journal reputation is not used as a substitute for article-level appraisal (Sauer & Seuring, 2023). The final sample size is not predetermined but includes all articles meeting the criteria after title–abstract screening and full-text assessment (Page et al., 2021).

Research instruments comprise a selection protocol, quality-appraisal form, extraction matrix and codebook, which are piloted on ten articles before application to the full corpus (Sauer & Seuring, 2023). The matrix records publication details, country and sector, research design, theoretical perspective, definitions of transparency, objects of trust, sustainability dimensions, findings, boundary conditions and study limitations (Paul & Criado, 2020). Two reviewers are planned to conduct screening independently and resolve disagreements through discussion, while record counts, reasons for full-text exclusion and the final corpus are reported using the PRISMA 2020 flow diagram as a reporting

guide (Page et al., 2021). Zotero is used for reference management and deduplication, and Microsoft Excel for maintaining the extraction matrix and an audit trail of selection decisions (Sauer & Seuring, 2023).

Analysis proceeds through deductive thematic coding based on the three principal constructs, followed by inductive coding to identify mechanisms and boundary conditions emerging from the literature (Sauer & Seuring, 2023). The synthesis compares conceptual definitions, levels of analysis, contexts and strength of evidence, distinguishing empirical findings from conceptual arguments and avoiding double counting primary studies included in review articles (Paul & Criado, 2020). The resulting framework is evaluated for logical consistency, traceability of each relationship to its sources and capacity to explain contradictory findings, before being articulated as propositions for subsequent testing (Jaakkola, 2020). Inferential statistics and meta-analysis are not planned because the intended output is a conceptual synthesis; publication frequencies are used solely to describe the corpus (Jaakkola, 2020; Paul & Criado, 2020).

## **RESULT AND DISCUSSION**

### **Result**

The relationship should be analysed according to the type of information disclosed and the party being evaluated (Schäfer, 2023; Li et al., 2024).

The relationship between transparency and trust does not operate through a uniform mechanism. In recommendation systems, perceived effectiveness and discomfort help explain the influence of transparency on trust, while consumer knowledge constitutes a boundary condition (Li et al., 2024). In green-product purchasing, review quality is associated with trust in reviews and information adoption, which support purchasing decisions (Ikhsan et al., 2024). These findings position consumer evaluation as an intermediary between information disclosure and trust formation, indicating that the quantity of available information alone is insufficient to explain the quality of trust.

In response to the second research question, the synthesis produces a proposed framework linking transparency practices, information credibility assessment, trust and sustainability outcomes. The framework distinguishes economic, social and environmental outcomes so that increased purchasing or technology acceptance is not treated as the sole indicator of business sustainability. Relationships between its components are presented as conceptual propositions requiring empirical examination, consistent with the need to integrate digital transformation and sustainability (Guandalini, 2022).

Two propositions emerge from the framework. First, transparency is expected to support trust when information is relevant, comprehensible and amenable to credibility assessment. Second, the contribution of trust to sustainability depends on the consistency between disclosed information, business practices and verifiable outcomes. Consumer knowledge and information characteristics constitute boundary conditions that warrant consideration. Thus, the principal conceptual result is a framework of conditional relationships, rather than a claim that transparency invariably increases trust or that trust automatically produces sustainability.

## DISCUSSION

The conditional relationship between transparency and trust indicates that e-commerce transformation should be understood not only as a change in technology and transactional channels but also as a transformation in information governance (Li et al., 2024; Nawaz & Wagner, 2025). This interpretation foregrounds consumers' capacity to evaluate information, since disclosure becomes meaningful only when it assists assessments of the entities being trusted (Schäfer, 2023; Schultheiß & Lewandowski, 2023). The study therefore shifts attention from the quantity of disclosed information towards its usefulness in establishing trust grounded in informed judgement (Schäfer, 2023). This shift extends transparency beyond a communication practice to encompass the relationships between disclosure, credibility and business accountability (Nawaz & Wagner, 2025).

This interpretation is consistent with Li et al. (2024), who demonstrate that the effect of recommendation-system transparency on trust involves perceived effectiveness and discomfort and is moderated by consumer knowledge. Their findings support the inclusion of consumer evaluation as an intermediary mechanism while qualifying the assumption that algorithmic explanations necessarily elicit positive responses (Li et al., 2024). Additional support comes from Ikhsan et al. (2024), who identify positive relationships between review quality, trust in reviews and green-product purchasing behaviour. Nevertheless, evidence concerning trust in reviews cannot be directly generalised to trust in a platform as a whole because the objects and contexts of evaluation differ (Ikhsan et al., 2024; Li et al., 2024).

By contrast, Reck et al. (2022) show that transparency cues can improve consumer responses to smaller brands while diminishing responses to larger brands in the context of fashion-product social responsibility communications. This finding challenges a linear interpretation of transparency as a reputational strategy, as inconsistencies between communication and brand image may evoke perceptions of greenwashing (Reck et al., 2022). Within the present framework, a decline in trust following disclosure may be interpreted as a correction in consumer judgement when information exposes inconsistencies, rather than necessarily as a failure of transparency (Reck et al., 2022; Schultheiß & Lewandowski, 2023). Nevertheless, extending this explanation across e-commerce sectors requires further testing because the evidence reported by Reck et al. (2022) concerns fashion brands.

Distinguishing trust from trustworthiness is also important because high levels of trust may arise in the absence of sufficient capacity to evaluate information (Schultheiß & Lewandowski, 2023). A survey of German internet users demonstrates that limited search-engine knowledge can coexist with high trust, indicating that trust does not necessarily imply awareness of commercial influences (Schultheiß & Lewandowski, 2023). This evidence reinforces the case for including information literacy as a boundary condition, although its application to e-commerce transactions remains a conceptual inference because the original research focused on search engines (Schultheiß & Lewandowski, 2023). Consequently, increases in trust should be evaluated alongside consumers' ability

to make informed decisions, rather than merely their acceptance of digital services (Li et al., 2024; Schultheiß & Lewandowski, 2023).

Theoretically, the proposed framework integrates consumer- and organisational-level perspectives by positioning trust as a potential mechanism while treating sustainability as a multidimensional outcome requiring separate measurement (Guandalini, 2022; Schäfer, 2023). This distinction prevents increases in green-product purchases from being interpreted as comprehensive evidence of improved environmental impacts or social conditions within supply chains (Ikhsan et al., 2024; Schäfer, 2023). The framework also clarifies that digital transformation creates opportunities for sustainability, whereas their realisation depends on aligning technology with organisational practices and objectives (Guandalini, 2022). Its contribution lies in articulating conditional relationships between constructs, enabling comparisons of circumstances in which transparency strengthens trust and those in which disclosure instead prompts critical evaluation (Li et al., 2024; Reck et al., 2022).

In practical terms, e-commerce managers can apply the framework to differentiate requirements for transactional information, recommendation explanations and supply-chain disclosures according to their intended audiences and evaluative purposes (Schäfer, 2023; Li et al., 2024). Explanations of recommendations should account for comprehensibility and consumer responses, while sustainability communications should remain consistent with business practices to avoid perceptions of greenwashing (Li et al., 2024; Reck et al., 2022). Strategy evaluation should combine indicators of customer trust and behaviour with relevant economic, social and environmental measures, ensuring that communication success does not substitute for sustainability assessment (Guandalini, 2022; Schäfer, 2023). However, because the framework remains conceptual, future studies must examine its mechanisms and boundary conditions across sectors, countries and objects of trust before broader generalisations can be justified (Guandalini, 2022; Li et al., 2024).

## **Discussion**

### **Construction and Negotiation of Islamic Identity in a Hindu-Majority Society**

This study proposes that the contribution of transparency to trust and e-commerce business sustainability is conditional. Information disclosure must be accompanied by relevance, comprehensibility and verifiability to facilitate assessments of credibility. Trust in sellers, platforms and recommendation systems must also be distinguished because each rests on different evaluative foundations. Accordingly, neither increased trust nor purchasing activity can serve as sufficient evidence of economic, social and environmental sustainability.

The proposed conceptual novelty lies in integrating transparency practices, information credibility assessments, objects of trust and sustainability outcomes within a framework of conditional relationships. This framework brings together research on consumer trust, digital transparency and organisational sustainability while recognising that disclosure may generate negative evaluations when it is inconsistent with actual business practices. Its theoretical contribution is to clarify the mechanisms and boundary conditions connecting the constructs, particularly

consumer knowledge, information characteristics and consistency in organisational conduct. Practically, it offers a basis for designing verifiable disclosures and evaluating business success through distinct indicators of customer responses and sustainability impacts.

The study is primarily limited by the conceptual nature of its framework, its reliance on the contexts represented in the reviewed literature and the absence of empirical testing of its propositions. The framework therefore neither establishes causal relationships nor guarantees applicability across sectors. Future research should employ experiments to examine the effects of disclosure quality, longitudinal designs to investigate relationships between trust and sustainability performance, and cross-country comparisons to assess the roles of digital literacy and institutional context. Measurements of actual impacts are essential to prevent sustainability from being reduced to perceptions or purchasing responses.

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