ICEBEF 2026

Digital Nudging on E-Commerce Platforms and Sustainable Consumption Behavior

A Systematic Literature Review

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PRESENTATION

Why sustainable consumption matters in e-commerce



E-commerce convenience

Online platforms make purchasing faster, easier, and more accessible.

Environmental pressure

Fast fashion, packaging, delivery, and product returns can enlarge consumption’s environmental footprint.

A design opportunity

The interface can make sustainable options more visible, easier to choose, or socially normal.

The interface is not neutral: it can shape how consumers notice, compare, and select products.

Source: Weinmann et al. (2016)

01 - INTRODUCTION

Research gap and contribution

Gap 1 · Fragmented evidence

Primary studies are spread across fashion, groceries, travel, and mobility, with inconsistent findings.

Gap 2 · Limited Indonesian evidence

Only one included study examined Indonesian users, and it focused on a ride-hailing application.

This review synthesize primary evidence in e-commerce settings, organised by nudge type, effectiveness, and conditions shaping effectiveness.

11 empirical studies | 2020–2025 | Narrative synthesis

Research questions

RQ1  Which types of digital nudges have been tested on e-commerce platforms?

RQ2  How effective are these digital nudges in supporting sustainable consumption?

RQ3  Which factors condition their effectiveness?

Systematic literature review design

Approach

Systematic Literature Review (SLR)

Reporting

PRISMA 2020

01 Synthesis

Narrative synthesis

02 Eligibility

- English or Indonesian; peer-reviewed
- Digital nudge in online retail/e-commerce/ app-based transaction platforms
- At least one sustainability-related outcome

03 Search & Scope

- Search conducted in November 2026
- Publisher platforms, DOAJ, RePEc/IDEAS, and PubMed Central
- Empirical journal studies published
- in 2020–2025

02 · METHOD

Study selection: from 44 records to 11 studies

44	20	15	11
Records identified	Journal articles screened	Full texts assessed	Studies included

Before screening: 23 non-journal documents and 1 inaccessible record were removed.

During screening: 5 excluded at title/abstract stage; 4 review, conceptual, or meta-analytic papers excluded from final synthesis.

11 empirical studies were retained for narrative synthesis.

Profile of the 11 included studies

4
randomised/field experiments

4
online experiments

1
survey (PLS-SEM)

1
mixed method study.

Dominant contexts: Fashion (4 studies) and groceries (3 studies), followed by cosmetics, flights, AI-enabled retail, and ride-hailing.

Research designs: 4 randomised/field experiments, 4 online experiments, 1 survey (PLS-SEM), 1 retailer-data analysis, and 1 mixed method study.

The evidence base is diverse in setting, method, and outcome.

Types of digital nudging identified (RQ1)

Decision information

7 studies — Eco-labels, emission labels, verbal/visual messages, socialnormal cues, returns information

Decision assistance

2 studies — Commitment devices, badges, emission converter

AI-enabled personalisation

2 studies — Personalisation, timing, framing, and machine learning targeting

Decision framing

3 studies — Default options; one Indonesian example was proposed rather than tested



How effective were the nudges? (RQ2)

7	2	2
favourable	null	descriptive

7 / 11 reported at least one significant favourable effect



Conditional effects

Results varied by context, user characteristics, and nudge design.



Caution

Combining nudges could backfire; some interventions showed no significant effect.



Overall pattern: promising evidence, but not a uniform or guaranteed effect.

Key findings from the evidence

~ +8%

Sustainable default

Higher probability of choosing the sustainable option.

3.2–3.9

percentiles lower • Eco-labels

Lower environmental impact score in an experimental online supermarket.

9–12%

Commitment

Lower basket carbon footprint; badge alone was not significant.

~ 2×

Personalisation

Machine-learning targeting approximately doubled the returns-nudge effect.



Study-specific outcomes; not directly comparable across different designs.

What shapes effectiveness? (RQ3)



Environmental concern

Consumers with stronger environmental values/concern were more responsive.



Product involvement

Effects differed between high- and low-involvement products.



Label credibility

Only 14% of 16,878 tagged fashion products carried a credible third-party label.



Personalisation

Machine-learning targeting approximately doubled the returns-nudge effect.

Discussion and practical implications

For platform designers

Test nudges individually; avoid stacking interventions without evidence.

For consumers

Use clear, credible sustainability information that supports informed choice.

For policymakers

Develop common sustainability-label standards to reduce greenwashing.

INTERPRETATION

Digital nudging can support sustainable consumption, but its impact depends on credible information, user context, and careful interface design.

Conclusion and future research



Main conclusion

Digital nudging can shift consumers toward sustainable options, with small-to-moderate and conditional effects.



Evidence gap

Evidence from Indonesian e-commerce marketplaces is almost absent; the included Indonesian study concerned ride-hailing.

FUTURE RESEARCH PRIORITIES

- Run field experiments on Indonesian e-commerce platforms.
- Measure actual purchasing behaviour and long-term effects.
- Examine transparency, explainability, and ethical safeguards in personalised nudging.



Thank you

Questions & Discussion

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