E-Commerce Consumer Behavior and Sustainable Marketing Practices in Responsible E-Waste Management: A Theory of Planned Behavior Approach

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Abstract: Digital transformation has driven the explosive growth of e-commerce transactions, particularly for electronic products. However, behind this convenience lies a significant challenge: the increasing volume of irresponsibly managed electronic waste (e-waste). In Indonesia, as one of the largest e-waste producers in Southeast Asia, the gap between consumer intent and behavior in managing electronic waste has become a critical issue. This study aims to identify the psychological and social factors that influence the intentions and behavior of e-commerce consumers in managing e-waste sustainably, using the Theory of Planned Behavior framework. A quantitative method was applied through a survey of 204 active e-commerce respondents in the Jakarta, Bogor, Depok, Tangerang, and Bekasi (Jabodetabek) areas, using a purposive sampling technique. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results show that Attitude and Perceived Behavioral Control significantly influence Consumer Intention, while Subjective Norm has no significant impact. More importantly, Consumer Intention proved to be a strong predictor of Consumer Behavior. The research model was able to explain 55.1% of the variance in intention and 48.8% of the variance in behavior. These findings offer a theoretical contribution by expanding the application of TPB in the context of e-waste management in Indonesia's digital economy. They also provide practical implications for policymakers, e-commerce platforms, and environmental organizations to design effective interventions. By improving the accessibility of recycling facilities, consumer education, and eco-friendly user experience design, relevant parties can bridge the gap between intention and action, which contributes to the field of sustainable marketing strategy and supports the achievement of Sustainable Development Goal (SDG's) 12 regarding responsible consumption and production in the digital era.

Keywords: Attitude, Subjective Norm, Perceived Behavioral Control, Theory of Planned Behavior (TPB), E-waste, Sustainable Marketing

1. Introduction

In today's fast-paced digital era, online shopping through e-commerce platforms has evolved from a mere trend into a daily habit for millions of Indonesians. The convenience of access, wide product variety, and competitive pricing have fueled rapid growth in marketplaces, positioning them as primary hubs within the e-commerce ecosystem for purchasing electronic devices—ranging from smartphones and laptops to supporting accessories (Mahatma, 2024). Technological advancement has become an inseparable component of modern lifestyles (Naza et al., 2024). This growing dependence on technology drives high consumer demand for newer, more advanced devices (Abimanyu & Kusumastuti, 2024). However, beneath this convenience lies a pressing environmental challenge: the escalating generation of electronic waste (e-waste), much of which is managed through informal and often hazardous practices.

E-waste is one of the fastest-growing waste streams globally, with global volumes reaching 53.6 million metric tons in 2019 and projected to surge to 74 million metric tons by 2030 (Mairizal et al., 2021). Within Southeast Asia, Indonesia ranks among the top producers of e-waste, yet its formal waste management infrastructure remains severely limited, with less than 10% of e-waste processed through regulated channels (Sheila, 2024). The remainder is frequently disposed of in household trash, incinerated, or dismantled in unsafe conditions, releasing toxic substances such as lead, mercury, and cadmium—posing serious risks to human health and ecological systems.

Paradoxically, while many consumers acknowledge the importance of recycling and responsibly managing e-waste, only a small fraction translate this awareness into actual behavior. This discrepancy gives rise to what is widely recognized as the intention–behavior gap. Addressing this gap requires a deeper understanding of the underlying drivers that motivate consumers to engage in sustainable actions. In this context, Ajzen (1991), Theory of Planned Behavior (TPB) offers a valuable theoretical lens. TPB posits that an individual's behavior is driven by behavioral intention, which is in turn shaped by three key determinants: Attitude toward the behavior, Subjective Norm, and Perceived Behavioral Control.

Despite its theoretical robustness, the application of TPB to e-waste management in Indonesia remains limited, particularly within the dynamic environment of e-commerce. Contemporary digital transformation not only demands transactional efficiency but also increasingly hinges on consumer satisfaction, trust, and perceived security in aspects such as data privacy and service quality (Kasmo et al., 2025). When e-commerce platforms succeed in building trust and delivering positive user experiences, they gain significant potential to influence consumer behavioral commitment toward more sustainable practices.

Therefore, understanding the factors that shape the intentions and behaviors of e-commerce consumers in responsibly managing e-waste is crucial for designing effective sustainable marketing interventions and environmental policies (Bamberg et al., 2007; Bhutto et al., 2023), This is especially pertinent in the Jabodetabek region—comprising Jakarta, Bogor, Depok, Tangerang, and Bekasi—which serves as Indonesia's digital economic center and a high-consumption urban corridor. Investigating consumer behavior in this context offers strategic insights for bridging the gap between sustainable intentions and actual practices in the digital economy.

2. Problem Statement

This study focuses on the behavior of e-commerce consumers in Indonesia, particularly within the Jabodetabek region (comprising Jakarta, Bogor, Depok, Tangerang, and Bekasi), regarding the management e-waste generated from online purchases. Despite the rapid increase in e-commerce usage for purchasing electronic devices, responsible e-waste management practices remain alarmingly low. A significant gap exists between consumers' stated intentions and their actual behaviors in managing e-waste sustainably—indicating the presence of psychological, social, and structural barriers that hinder behavioral translation.

This intention–behavior gap raises critical questions: What factors shape consumers' intentions to manage e-waste responsibly? Why do positive attitudes or social norms not consistently lead to sustainable actions? And how do perceived capabilities influence both intention and actual behavior in this context?

To address these issues, this study aims to examine the key determinants influencing consumer intention in e-waste management within the digital consumption landscape. Grounded in the Theory of Planned Behavior (TPB), the research seeks to identify the cognitive and social mechanisms that drive or inhibit responsible consumer behavior.

The specific objectives of this study are as follows:

- To analyze the influence of Attitude on Consumer Intention regarding e-waste management.
- To examine the effect of Subjective Norm on Consumer Intention in the context of responsible e-waste disposal.
- To assess the impact of Perceived Behavioral Control on Consumer Intention toward sustainable e-waste practices.
- To investigate the influence of Consumer Intention on actual Consumer Behavior in managing electronic waste.

By addressing these research questions, the study contributes to a deeper understanding of the behavioral drivers in e-waste management among digital consumers, offering empirical insights for designing targeted interventions that bridge the gap between sustainable intentions and real-world actions.

3. Literature Review

3.1 Consumer Behavior

Consumer behavior refers to the study of how individuals, groups, and organizations select, purchase, use, and dispose of goods, services, ideas, or experiences to satisfy their needs and desires (Kotler & Keller, 2016). In the context of this research, the scope extends beyond transactional aspects to encompass sustainability dimensions—particularly how consumers respond to environmental issues such as electronic waste (e-waste) generated through e-commerce activities (Kotler & Keller, 2016). Amid growing concerns over environmental degradation, consumers are increasingly expected not only to act as active buyers but also to assume responsibility in protecting ecosystems through their consumption choices and end-of-life management of used products (Schiffman & Wisenblit, 2014; Solomon, 2019).

In the specific context of e-waste management within e-commerce, it is crucial to understand the underlying factors that shape consumer intentions to engage in responsible behavior toward the disposal of obsolete electronic devices. Enhancing consumer education and improving user experience on e-commerce platforms have been identified as effective strategies for strengthening behavioral commitment to sustainable e-waste practices (Kasmo et al., 2025). These interventions can empower consumers by increasing awareness, reducing perceived barriers, and embedding sustainability into the digital consumption journey.

Thus, consumer behavior encompasses not only physical actions and decision-making processes related to consumption but also reflects individual accountability for the long-term environmental and social impacts of their choices. In e-waste management, the intention to participate in recycling and responsible disposal is shaped by a combination of environmental knowledge, personal commitment, positive attitudes, and perceived social support (Hornik et al., 1995; Nguyen et al., 2019). Understanding these behavioral dynamics is essential for fostering consumption patterns that meet present needs without compromising ecological balance and intergenerational equity—core principles of sustainability.

This theoretical foundation underscores the importance of examining not just what consumers do, but why and how they make decisions, particularly in contexts where environmental responsibility requires deliberate effort and behavioral change. As such, consumer behavior in sustainable e-waste management must be analyzed through a multidimensional lens that integrates cognitive, affective, social, and contextual influences.

3.2 sustainability

The concept of sustainability refers to development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Brundtland, 1987). Achieving sustainability requires a collaborative effort among governments, the private sector, and civil society to adopt environmentally responsible practices across production and consumption systems. At the global level, this imperative is institutionalized through the United Nations' 2030 Agenda for Sustainable Development, which outlines 17 Sustainable Development Goals (SDGs) adopted in 2015 (Nation, 2015). These goals provide a comprehensive framework for addressing pressing environmental, social, and economic challenges on a global scale.

This study directly contributes to SDG 12: Responsible Consumption and Production, which calls for more efficient resource use, the expansion of recycling and reuse systems, and the reduction of waste generation—including e-waste. SDG 12 emphasizes the need for systemic changes in consumption patterns and production models, advocating for a holistic approach that integrates environmental stewardship, economic viability, and social equity.

Within this context, the Triple Bottom Line (TBL) framework, introduced by Elkington (1998), offers a valuable lens for evaluating organizational performance beyond traditional financial metrics. TBL expands the notion of corporate success to encompass three interconnected dimensions: Profit, People, and Planet. This approach urges businesses to balance economic objectives with social responsibility and environmental protection, fostering long-term sustainability rather than short-term gains. In the digital economy, where e-commerce platforms play a pivotal role in shaping consumer behavior, integrating TBL principles can drive innovation in sustainable packaging, take-back programs, eco-labeling, and circular business models.

Thus, sustainability in the context of e-waste management is not merely an environmental concern but a multidimensional challenge requiring coordinated action across stakeholders. By aligning consumer behavior with sustainable practices through informed decision-making, policy support, and corporate accountability, this study supports the broader transition toward a circular economy and responsible digital consumption—key pillars of global sustainability efforts.

3.3 The Concept of the Triple Bottom Line

The Triple Bottom Line (TBL) framework, introduced by Elkington (1998), expands corporate performance evaluation beyond financial gain (Profit) to include social responsibility (People) and environmental sustainability (Planet). In the e-commerce context, this means digital platforms should not only drive sales but also address the ecological impacts of their products—particularly electronic devices, from production to end-of-life as e-waste. By integrating TBL, e-commerce actors can promote take-back programs, sustainable packaging, certified recycling, and consumer education, aligning business growth with environmental stewardship and social accountability. This holistic approach supports the transition toward a circular economy and reinforces responsible consumption in the digital age.

3.4 Theory of Planned Behavior (TPB)

This study adopts Ajzen (1991), Theory of Planned Behavior (TPB) as its primary theoretical framework. TPB posits that individual behavior is driven by reasoned evaluation of personal outcomes—specifically, how performing a behavior is perceived to yield positive or negative consequences for the self (Ajzen, 1991). Widely recognized as one of the most robust models for predicting human behavior, TPB has been effectively applied in various environmental contexts, including recycling, energy conservation, and waste management (Ajzen, 1991; Fatoki, 2023; Hu et al., 2024).

According to TPB, behavioral intention is the immediate predictor of actual behavior, and this intention is shaped by three key determinants: Attitude, Subjective Norm, and Perceived Behavioral Control (PBC).

- **Attitude** reflects an individual's positive or negative evaluation of performing a specific behavior. In the context of e-waste management, consumers who believe that recycling electronics contributes to environmental protection, resource conservation, or personal reputation are more likely to develop strong intentions to act (Maulani et al., 2024).
- **Subjective Norm** refers to the perceived social pressure to perform or refrain from a behavior, based on expectations from significant others such as family, friends, or community members (Ajzen, 1991). In collectivist cultures like Indonesia, social norms can strongly influence behavior. However, e-waste management remains a low-salience issue in public discourse, resulting in weak normative pressure toward sustainable actions (Sari et al., 2021).
- **Perceived Behavioral Control** denotes an individual's perception of the ease or difficulty of performing a behavior, contingent on access to resources, skills, and opportunities (Ajzen, 1991). In e-waste management, PBC depends on the availability of recycling facilities, clarity of disposal procedures, and accessibility of information. When consumers perceive logistical or informational barriers—such as not knowing where or how to return used electronics—intention often fails to translate into action (Abimanyu & Kusumastuti, 2024).

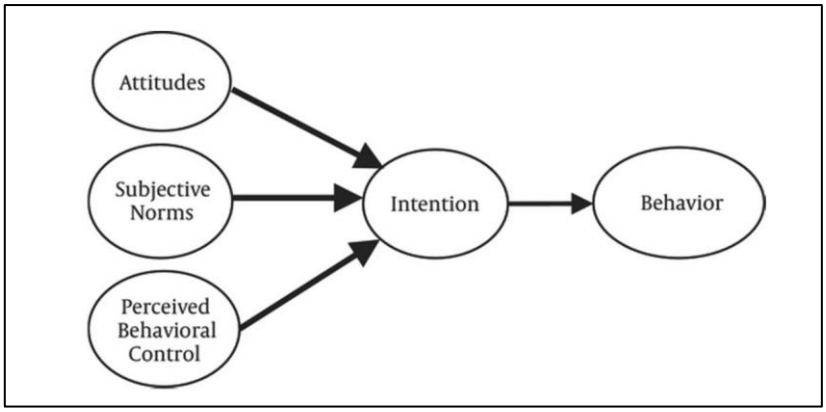

Figure 1 TPB Model
Source: (Ajzen, 1991).

4. Hypothesis Development

Based on the Theory of Planned Behavior (TPB) framework developed by Ajzen (1991), this study formulates four hypotheses that explain the relationship between psychosocial determinants and consumer behavior in e-waste management through e-commerce.

4.1 The Effect of Attitude on Consumer Intention

Attitude (ATT) is defined as an individual's personal evaluation of a behavior, encompassing judgments on whether the action is beneficial, practical, or reduces feelings of guilt. In the context of e-waste management, a positive attitude toward recycling directly encourages consumers' intention to actively participate.

Empirical studies consistently support a positive and significant relationship between ATT and Consumer Intention (CI). Aboelmaged (2021), found that positive attitudes influence e-waste recycling intentions among young consumers in the United Arab Emirates, while Sari et al. (2021) dan Vijayan et al. (2023), reported similar findings in Indonesia and India. Environmental attitudes have also been shown to influence pro-environmental decisions among youth and students (Bhutto et al., 2023; Jalaludin, 2025; Ji et al., 2024). Other studies specifically link positive attitudes to increased intentions for recycling and sustainable end-of-life product management (Hameed et al., 2021; Sabbir et al., 2023; Xiang & Mangmeechai, 2024). This influence extends to other contexts such as energy, agriculture, and conservation (Fatoki, 2023; Savari et al., 2023; Wang et al., 2023), and has even been identified as the strongest predictor in decisions to purchase energy-efficient products (Jia et al., 2024). Based on this theoretical foundation and empirical evidence, the first hypothesis is proposed:

H1: Attitude has a positive and significant effect on Consumer Intention.

4.2 The Effect of Subjective Norm on Consumer Intention

Subjective Norm (SN) refers to an individual's perception of social pressure from significant others, such as family, friends, or the broader community. This perception plays a key role in shaping or weakening an individual's intention to act. The stronger the perceived positive social pressure, the more likely an individual is to develop the intention to perform the corresponding behavior.

In e-waste management, SN has been shown to be a significant factor influencing intention. Nguyen et al. (2019), demonstrated that perceived societal views can encourage recycling intentions, while studies by Hameed et al. (2021) dan Sabbir et al. (2023) confirm that individuals tend to align their behavior when they perceive that their community values environmentally friendly actions. In collectivistic societies such as India and China, subjective norms may even stem from collective moral pressure (Ji et al., 2024; Laeequddin et al., 2022; Sheoran & Kumar, 2022). Peer influence and social media have also been reported to encourage millennials to engage in e-waste recycling (Bhutto et al., 2023), and expectations from key social figures further influence pro-environmental intentions (Jalaludin,

2025; Sun et al., 2022; Vijayan et al., 2023).
Thus, the second hypothesis is formulated:

H2: Subjective Norm has a positive and significant effect on Consumer Intention.

4.3 The Effect of Perceived Behavioral Control on Consumer Intention

Perceived Behavioral Control (PBC) measures an individual's belief in their ability to perform a behavior, including perceived ease or obstacles related to capability, resources, and opportunity. The higher an individual's perceived control over e-waste management, the stronger their intention to carry it out.

Numerous studies support the positive relationship between PBC and intention toward pro-environmental behavior. Nguyen et al. (2019), found that access to recycling facilities significantly contributes to e-waste recycling intention. Factors such as increased awareness and information have also been shown to strengthen PBC (Hameed et al., 2021). Other studies indicate that strong PBC enhances intentions to recycle electronic waste and to purchase electric vehicles (Jia et al., 2024; Xiang & Mangmeechai, 2024). Knowledge and opportunities to exchange electronic products also improve PBC and recycling intention (Sabbir et al., 2023). Self-confidence and training have likewise been found to increase commitment to pro-environmental behavior (Jalaludin, 2025; Savari et al., 2023). Based on this evidence, the third hypothesis is proposed:

H3: Perceived Behavioral Control has a positive and significant effect on Consumer Intention.

4.4 The Effect of Consumer Intention on Consumer Behavior

According to TPB, Intention is the primary predictor of actual behavior. A strong intention reflects an individual's commitment and readiness to act; thus, the higher the intention, the greater the likelihood that the behavior will be performed.

Several studies have demonstrated a significant relationship between intention and actual Consumer Behavior, particularly in e-waste management and other pro-environmental actions. Intention has been shown to significantly influence waste sorting behavior (Setiawan et al., 2021) and plastic waste recycling (Hameed et al., 2021). In the context of electronic waste, research indicates that intention significantly affects actual recycling behavior (Mohamad et al., 2022; Vijayan et al., 2023). Consumer intention also significantly influences electronic product exchange behavior (Sabbir et al., 2023) and proper e-waste disposal practices (Michael et al., 2024; Rajput & Sarkar, 2025). Easy access to facilities and adequate information help young consumers translate recycling intentions into actual behavior (Islam et al., 2025). Therefore, the fourth hypothesis is formulated:

H4: Consumer Intention has a positive and significant effect on Consumer Behavior in managing e-waste responsibly.

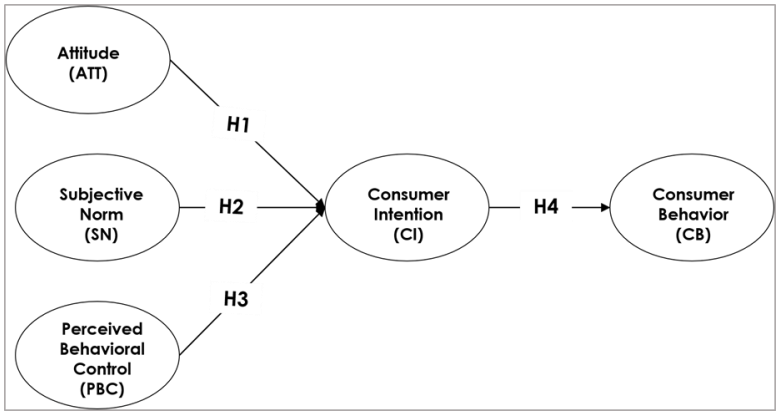

Figure 2 Conceptual Framework
Source: Author's Data (2025)

5. Results and Discussion

Based on the analysis results obtained, the following discussion is structured to systematically explain each hypothesis and its interpretation within the theoretical context and research objectives. Thus, this section provides an in-depth understanding of the relationships among the variables in the model.

5.1 Respondent Demographic Profile

The respondents consist of 204 active e-commerce users in the Jabodetabek region, aged between 18 and 44 years. The gender distribution is balanced: 51% male and 49% female. The majority are aged 25–44 years (63%), representing the productive and digitally active age group.

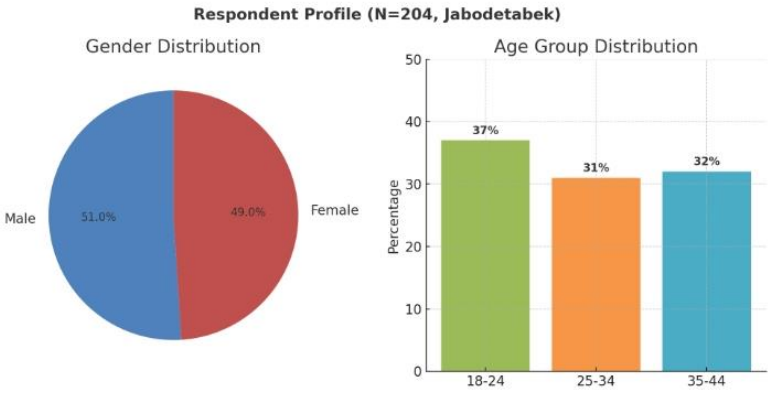

Figure 3 Distribution of Respondents' Gender and Age Group
Source: Author's Data (2025).

In terms of education, the majority of respondents have high educational attainment: 53% hold a Bachelor's degree (S1), 17% a Master's degree (S2), and 14% a Diploma. Only 16% completed high school or equivalent. This profile indicates that respondents generally possess a high level of literacy, which should support greater environmental awareness..

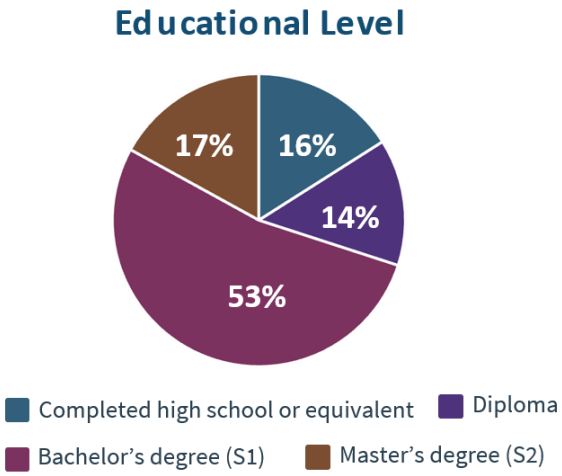

Figure 4 Distribution of Respondents' Educational Level
Source: Primary data processing results, 2025.

In terms of employment, the majority are self-employed, private employees, and independent professionals (67%), reflecting urban economic dynamics. Respondents are distributed across Jakarta, Bogor, Depok, Tangerang, and Bekasi, with the highest concentration in Jakarta. Economically, 80% of respondents report monthly expenditures ranging from IDR 6 million to over IDR 9 million, indicating relatively high purchasing power.

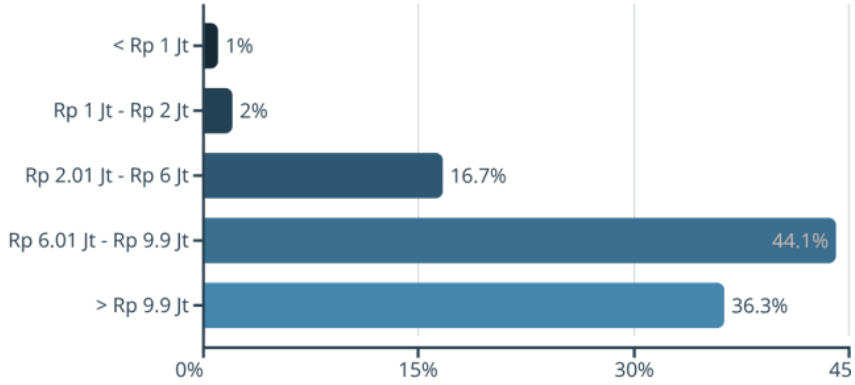

Figure 5 Distribution of Respondents' Monthly Expenditure Level
Sumber: Primary data processing results, 2025.

Notably, 96% of respondents reported having purchased electronic products through e-commerce within the past three months, confirming that they are active consumers likely to generate significant amounts of e-waste. These findings confirm that all respondents are relevant to the research problem defined by the researcher, making them appropriate for analysis and conclusion.

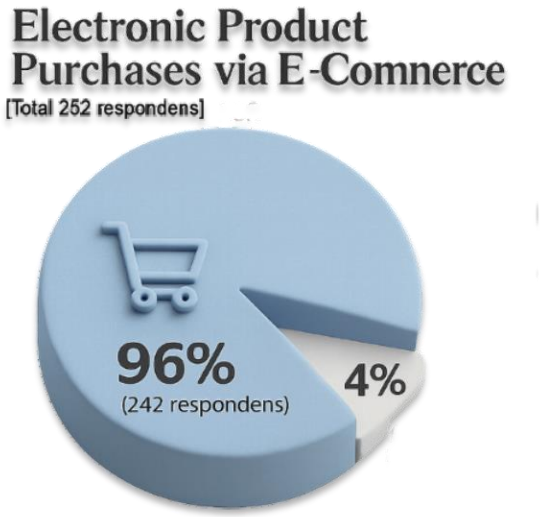

Figure 6 Frequency of Electronic Product Purchases via E-commerce
Source: Primary data processing results, 2025.

This combination of demographic characteristics indicates that the research sample represents a consumer segment that is likely tech-savvy, values information, and possesses sufficient purchasing power to consider responsible e-waste management practices. Higher levels of education and income are often positively correlated with willingness to adopt sustainable behaviors, while the productive age range suggests potential for active engagement in environmental issues. The slight predominance of male respondents and those in the middle productive age group is also relevant, as they tend to be active consumers of electronic products and thus more likely to generate e-waste. The alignment of respondent profiles with the research focus strengthens the relevance of the findings in explaining consumer intentions and behaviors regarding electronic waste management.

5.2 E-Commerce Users' Behavior in Managing E-Waste

This study explores the actual practices adopted by consumers in managing electronic waste originating from e-commerce transactions. The majority of respondents are active e-commerce users who are likely to generate e-waste.

However, most of them have not demonstrated responsible management behaviors, due to low awareness, lack of information, and limited availability of e-waste collection facilities.

Table 1 E-commerce Users' Behavior in Managing E-waste

91%	87%	75%	67%
Possession of E-Waste	Improper Disposal	Infrastructure	Participation
Respondents have electronic waste from purchases made through e-commerce.	Respondents have disposed of e-waste in regular trash along with other household waste.	Respondents are unaware of the existence of official e-waste facilities in their area.	Respondents have never participated in any recycling programs.

Source: Primary data processing results, 2025.

Of the respondents, 91% reported owning e-waste generated from e-commerce purchases. However, as many as 87% admitted to disposing of it in regular trash bins. Furthermore, only 25% were aware of official e-waste collection facilities, and merely 33% had ever participated in recycling programs. This indicates a clear gap between awareness and actual behavior.

The most concerning finding is that only 48% of respondents felt personally responsible for managing electronic waste from products they purchased online. This data further underscores the urgency of this study, highlighting a significant gap between e-waste ownership and responsible management practices among e-commerce consumers.

5.3 SEM-PLS Data Analysis Results

The table below presents the complete calculation results using SmartPLS 4.1.

Table 2 Hypothesis Testing Results

Hypothesis	*Koefisien* (β)	*T-statistics (t)*	*P-value (p)*	Result	Status
H1 (ATT) → (CI)	0.199	3.355	0.000	Positive and Significant	H1 Supported
H2 (SN) → (CI)	0.115	1.593	0.056	Positive but Not Significant	H2 Not Supported
H3 (PBC) → (CI)	0.552	8.260	0.000	Positive and Significant	H3 Supported
H4 (CI) → (CB)	0.699	13.437	0.000	Positive and Significant	H4 Supported

Source: Primary data processing results, 2025.

5.3.1 The Effect of Attitude on Consumer Intention

Within the Theory of Planned Behavior (TPB) framework, Attitude (ATT) refers to an individual's evaluation of the personal benefits associated with a behavior. In this study, it reflects consumers' perceptions of whether responsible e-waste management is considered beneficial, practical, or guilt-reducing (Ajzen, 1991).

PLS-SEM analysis results indicate that Attitude has a positive and significant effect on Consumer Intention, with a path coefficient (β) of 0.199, a t-statistic value of 3.355, and a p-value of 0.000. This finding suggests that the more positive a consumer's attitude toward e-waste management, the stronger their intention to engage in environmentally responsible behavior.

This result is consistent with prior studies that also support these findings, including Aboelmaged (2021) di Uni Emirat Arab, Sari et al. (2021) in Indonesia, Vijayan et al. (2023) di India, and Xiang & Mangmeechai (2024), all of which show that positive attitudes consistently encourage intentions to recycle e-waste. Furthermore, Jia et al. (2024), found that ATT has the strongest direct effect on decisions to purchase energy-efficient products.

Therefore, fostering positive consumer attitudes toward e-waste management is key to enhancing their intention to participate. In the context of sustainable marketing, this implies that strategies emphasizing communication of environmental values and benefits are effective in strengthening favorable consumer intentions.

5.3.2 The Effect of Subjective Norm on Consumer Intention

Within the Theory of Planned Behavior (TPB) framework, Subjective Norm (SN) refers to an individual's perception of social pressure from important others—such as family, friends, or the broader community—regarding whether they should perform or avoid a certain behavior (Ajzen, 1991). In this context, SN reflects the extent to which consumers feel encouraged by their social environment to manage e-waste responsibly.

PLS-SEM analysis results show that Subjective Norm has a positive but non-significant effect on Consumer Intention, with a path coefficient (β) of 0.115, a t-statistic of 1.593, and a p-value of 0.056. Therefore, hypothesis H2 is rejected, indicating that social pressure does not serve as a significant driver in shaping e-waste management intentions among Indonesian e-commerce consumers.

This finding is consistent with prior studies that have identified limited influence of social norms in pro-environmental behavior contexts. Ting et al. (2021), reported that Malaysian individuals are not highly concerned about others' opinions regarding food waste. Aboelmaged (2021), also found that young consumers in the United Arab Emirates are more influenced by personal preferences than by social pressure when recycling e-waste. Sari et al. (2021), confirmed that SN is non-significant in the Indonesian context, likely due to limited recycling facilities and insufficient information, which hinder the formation of collective norms. Furthermore, Mohamad et al. (2022), explained that the weak culture of waste segregation prevents the emergence of strong social pressure toward recycling.

From a sustainable marketing perspective, this finding suggests that strategies relying solely on social pressure or influencer-based campaigns may be less effective in fostering consumer intention. Instead, efforts should focus on strengthening internal factors such as personal attitudes and commitment, along with improving practical ease through accessible facilities and relevant education.

5.3.3 The Effect of Perceived Behavioral Control on Consumer Intention

Within the Theory of Planned Behavior (TPB) framework, Perceived Behavioral Control (PBC) refers to an individual's perception of how easy or difficult it is to perform a behavior, determined by the availability of resources, time, knowledge, and access to supporting facilities (Ajzen, 1991). In the context of e-waste management, PBC reflects consumers' belief that they possess sufficient ability, time, information, and access to manage electronic waste responsibly.

PLS-SEM analysis results indicate that PBC has a positive and significant effect on Consumer Intention (CI), with a path coefficient (β) of 0.552, a t-statistic of 8.260, and a p-value of 0.000. This finding confirms that the higher consumers' perception of ease and capability in managing e-waste, the stronger their intention to do so.

This result is highly consistent with TPB, which positions PBC as one of the key predictors of behavioral intention (Ajzen, 1991). Empirical evidence across various contexts supports this finding; Nguyen et al. (2019), found that access to e-waste collection centers significantly increases recycling intention; Ting et al. (2021), reported a positive relationship between PBC and intention to reduce food waste; Sabbir et al. (2023), showed that knowledge and opportunities strengthen both PBC and recycling intention; while Ji et al. (2024) dan Xiang & Mangmeechai (2024) confirmed the role of PBC in e-waste management and electric vehicle adoption.

From a sustainable marketing perspective, this finding underscores the importance of providing easily accessible infrastructure, clear procedural guidance, and supportive services such as e-waste pickup. Such initiatives not only reduce practical barriers but also directly enhance consumers' intention to engage in environmentally responsible behavior.

5.3.4 The Effect of Consumer Intention on Consumer Behavior

Within the Theory of Planned Behavior (TPB) framework, Consumer Intention (CI) refers to an individual's readiness and commitment to perform a specific action—in this case, managing electronic waste responsibly. Consumer Behavior (CB), on the other hand, refers to actual consumer actions, such as recycling, donating, or returning used electronic devices to official facilities (Mohamad et al., 2022). This hypothesis examines the extent to which strong intentions translate into actual behavior.

PLS-SEM analysis results show that Consumer Intention has a positive and significant effect on Consumer Behavior, with a path coefficient (β) of 0.699, a t-statistic of 13.437, and a p-value of 0.000. This finding reinforces the core principle of TPB, which posits that intention is the primary predictor of actual behavior (Ajzen, 1991)

Consistently, prior studies support the strong link between intention and actual action. Setiawan et al. (2021), found that intention significantly influences waste segregation behavior. Mohamad et al. (2022), Vijayan et al. (2023), dan Sabbir et al. (2023), also confirm that consumer intention directly affects e-waste recycling behavior. Furthermore, Islam et al. (2025) demonstrated that when practical barriers are reduced, young consumers' intentions are more likely to be translated into actual behavior. Thus, fostering strong intentions is a crucial step in promoting responsible e-waste management behavior. From a sustainable marketing perspective, this finding highlights the importance of not only shaping intentions through education and awareness campaigns but also ensuring the absence of structural barriers when consumers are ready to act. While strong intention is a key indicator of behavioral likelihood, its realization still depends on accessible infrastructure and systemic support.

6. Conclusion

This study aims to analyze the factors influencing the intentions and behaviors of e-commerce consumers in managing electronic waste (e-waste) responsibly, using the Theory of Planned Behavior (TPB) as the theoretical framework. Based on PLS-SEM analysis of 204 respondents in the Jabodetabek region, four main conclusions were drawn.

First, Attitude has a positive and significant effect on Consumer Intention (CI), indicating that consumers who perceive e-waste management as personally beneficial, practical, or guilt-reducing are more likely to intend to act. This finding reaffirms the role of ATT as a strong psychological predictor in intention formation.

Second, Subjective Norm does not significantly influence consumer intention. Although social pressure is theoretically expected to encourage pro-environmental behavior, this result suggests that, in the context of e-waste management in Indonesia, expectations from family, friends, or the broader community are not yet a primary driver. This indicates a weak collective social norm regarding e-waste recycling.

Third, Perceived Behavioral Control (PBC) emerges as the strongest predictor of consumer intention. Consumers' perceptions of easy access to facilities, availability of information, and personal capability significantly enhance their intention to manage e-waste. This underscores the critical role of structural and practical factors in promoting sustainable behavior.

Fourth, Consumer Intention (CI) has a positive and significant effect on Consumer Behavior (CB), consistent with the core principle of TPB. A strong intention is the primary indicator of actual behavioral enactment, although an intention–behavior gap persists and must be addressed through systemic support.

Overall, the research model explains 55.1% of the variance in intention and 48.8% of the variance in behavior. These findings contribute theoretically by extending the application of TPB to e-waste management within Indonesia's e-commerce ecosystem—a developing country experiencing rapid digital growth. Practically, this study

supports the achievement of SDG 12: Responsible Consumption and Production, demonstrating that e-commerce platforms can serve as catalysts for changing consumer behavior through sustainable marketing strategies focused on fostering positive attitudes and enhancing perceived behavioral control—key drivers in motivating e-commerce consumers to manage e-waste responsibly. Despite high levels of intention, actual action remains low due to barriers related to access and information. Therefore, solutions should focus on improving accessibility, establishing incentive systems, and strengthening education delivered through digital platforms.

7. Implication

- **Managerial Implications:** The findings highlight the need for e-commerce companies to move beyond a sole focus on sales and integrate sustainable marketing practices into their operations. Firms should provide clear information and conduct educational campaigns about the environmental hazards of e-waste and proper disposal methods. Additionally, offering easily accessible e-waste collection facilities and implementing recycling incentives can strengthen Perceived Behavioral Control and enhance consumer intention to act responsibly.

- **Theoretical Implications:** This study confirms the relevance of the Theory of Planned Behavior (TPB) in explaining e-waste management behavior within the Indonesian context. However, the finding that Subjective Norm is not significant suggests that cultural or contextual factors may limit the effectiveness of social pressure in driving pro-environmental intentions. This highlights the need for future research to develop more context-sensitive theoretical models that incorporate local socio-cultural dynamics in sustainable behavior frameworks.

8. Limitations and Future Research

Despite providing meaningful insights, this study has several limitations that present opportunities for future research.

First, the geographical scope is limited to the Jabodetabek region, which may affect the generalizability of the findings. Second, the study employs a cross-sectional design and quantitative methodology, which may not fully capture the depth of consumer behavioral motivations. Third, while TPB offers a robust framework, it could be extended by incorporating external variables such as government regulations or internal factors like personal values to provide a more holistic understanding of e-waste management behavior.

Future studies are encouraged to expand the geographical scope, adopt qualitative or mixed-method approaches to explore underlying behavioral motivations, and test enhanced theoretical models in different cultural and digital consumption contexts.

By focusing on strengthening behavioral control through improved accessibility and advancing more comprehensive theoretical models, this research is expected to enrich academic literature and provide a stronger foundation for practical interventions in e-waste management in Indonesia. It also contributes meaningfully to the Sustainable Development Goals and enhances the competitiveness of the national digital economy.

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