The Impact of Implementing Green Marketing through Digitalization Tools on Purchase Intentions for Green Cosmetics in the Context of the Indonesian Green Growth Program

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Abstract. Investigating the relationship between ecological behaviour characteristics and digitalisation tools, as well as the mediating effects of environmental awareness and concern on the desire to purchase green cosmetics, is the aim of this study. 423 respondents were polled for the study using questionnaires, and the data was collated and processed using SmartPLS's Partial Least Squares analysis and structural equation modelling. The test results demonstrate that digitalisation tools positively impact customer buying intentions and ecological behaviour. Furthermore, consumers' buying intentions, environmental awareness, and environmental concerns are all positively impacted by ecological behaviour. However, consumer purchasing intentions are not positively impacted by environmental awareness or concerns. The government should keep educating the public about ecologically friendly items and promoting their use, according to the overall test results. This can help the government implement the suggested green economy program and raise consumer awareness and understanding to purchase eco-friendly goods, particularly eco-friendly cosmetics.

Keywords: digitalization instruments, ecological behavior, purchase intention, environmental knowledge¸ environmental concern.

1 Introduction

This decade's society is dealing with a number of issues and barriers brought on by the quickening pace of industrialisation and urbanisation. The two main problems at the moment are pollution and the health crisis, which endanger present and future generations. In order to represent an average for the city or town as a whole, rather than for individual stations, the WHO Ambient Air Quality Database gathers data on ground measurements of annual mean concentrations of nitrogen dioxide (NO2), particulate matter of a diameter equal or smaller than 10 μm (PM10), and equal or smaller than 2.5 μm (PM2.5). The primary source of both types of pollutants is human activity associated with burning fossil fuels.

Data on air quality for more than 8600 human settlements in more than 120 nations is currently available in the database's sixth version, also known as Update 2023, which was made available

in May 2023. This is the sixth update to the database, which has been updated every two to three years since 2011. WHO is the custodial organisation for the Sustainable Development Goal Indicator 11.6.2, Air quality in cities, which is derived from the data collected in this database.

Therefore, in order to provide the best possible living conditions, immediate action is required. In order to promote environmental conservation, Indonesia has put out a set of initiatives known as the "Green Growth Program." By reducing greenhouse gas emissions, the program seeks to reduce pollution and establish a green economy. These initiatives aim to reach end users as well as different industry sectors. Natural resource management, poverty reduction, food and energy security, and economic growth are among the actions. [1];[2]. Every link in the production and distribution chain, including the green economy under the Green Growth Program, requires immediate action. Raising end-user awareness is essential to the sustainability of this transformation. Customers may be persuaded to alter their lifestyles, buy eco-friendly goods, and even pay extra for them as a result. In this regard, green marketing is essential for reviving and promoting green products. [3].

With the goal of creating marketing strategies that give environmental sustainability top priority, green marketing has emerged as a critical topic for both businesses and society. Green marketing, as defined by Hawkins, Mothersbaugh, and Best, is a marketing mix that any business may create while keeping the environment in mind.[4].Numerous research have been carried out to examine the connection between consumer perceptions and reactions to sustainable brands and the four Green P's: product, pricing, place, and promotion. [5][6]. In addition, according to [7], Green marketing refers to tactics that leverage environmental claims about systems or features, business policies, and marketing or production procedures to raise the value of goods and services. As stated by [3], Green marketing is a collection of controllable factors that businesses may utilise to affect consumer behaviour. To put it simply, green marketing use the four components of the conventional marketing mix to promote eco-friendly goods and services, such as sustainable packaging and creative waste management. As stated by [8], Green marketing initiatives aim to satisfy customer demands while reducing adverse environmental effects. To improve quality and encourage durable product packaging, marketers use environmental safety tactics and incorporate eco-friendly procedures into their operations. Regarding goods, packaging, costs, and promotions, the green marketing mix aligns with the company's environmental objectives. [9].

Purchase decisions are heavily influenced by consumers' views in addition to the application of green marketing. [10]. As stated by [11];[12];[13];[14], The consumer's intention to buy is one of the other aspects that affects their decision to buy. Purchase intention, as defined by [15];[16], is the desire to accomplish important goals that motivates consumers to buy environmentally friendly items. This leads people to concentrate on things that are seen as more important; the more time they spend on these things, the more they understand their significance and the more they desire to accomplish their objectives. To succeed in accomplishing their overall aims, they must therefore expand their focus to encompass objectives that are deemed less important.

According to [17];[18];[19], Green consumers are inclined to select eco-friendly products that are made using eco-friendly resources and delivered through eco-friendly systems. Additionally, they frequently favour communication and advertising strategies that support environmental sustainability.[20]. [21] adds that green marketing plans may be made more eco-friendly and practical by including digitalisation tools, which offer information about how to use cyberspace technology appropriately. Paper and energy usage can be decreased by using digital components including digital communications, digital commerce, and digital access. But as mentioned

by[22];[23];[24], The advantages of digitalisation may also motivate this behaviour, leading to a rise in consumer activity, rather than being solely influenced by customers' ecological views. Consequently, rather than being the outcome of ecological behaviour, the environmental impact could be a byproduct of digitalisation.[25];[26].

We ask the following research question in light of the previously described description: What effects does the use of digitalisation tools for green marketing have on consumers' inclinations to buy, and how does ecological behaviour influence this relationship? We will offer a number of theories and create a research model that takes into account the impact of ecological factors as well as the impact of digital technologies on consumer behaviour in order to further explore this problem.

2 Hypothesis Development

2.1 Hypothesis Development

The Relationship between Green Marketing and Ecological Behavior

Green marketing encompasses a range of strategies and projects that cover the whole marketing spectrum, from distribution networks that encourage environmental preservation to the development of advertising and communication materials based on recycled materials, to products manufactured with eco-friendly materials. [13][14]. Green marketing incorporates the use of digitalisation tools since, in addition to its usefulness, it also benefits the environment by using less paper and energy. [15]. However, [18] showed that green marketing has no discernible impact on consumers' intentions to make purchases or their purchasing behaviour (confidence in environmentally friendly product performance).

H_1 = Green Marketing using digitalization instruments has a positive effect on Ecological Behavior.

The Relationship between Green Marketing and Purchase Intention

Studies [3];[19];[20] have shown that consumer attitudes and green marketing positively affect consumers' intentions to buy green products. It has been demonstrated that the impact of green marketing on consumers' intentions to purchase eco-friendly items is mediated by the consumer attitude variable. But [18] showed that green marketing had no discernible impact on consumers' intentions to make purchases or their belief in the performance of ecologically friendly products..

H_2 = Green Marketing using digitalization instruments has a positive effect on Purchase Intention.

The Relationship between Ecological Behavior and Purchase Intention

Ecological behaviour generally refers to acts that support environmental preservation and conservation. [21]. Animal conservation, paper recycling, and energy and water conservation are a few examples of environmental behaviour. In a market that is changing, employees' environmental behaviour is thought to be crucial to gaining and preserving a competitive edge. Employee understanding, awareness, and dedication to environmental activities are essential for the successful implementation of green practices. [22][23][24]. Purchase intention, or the likelihood that customers will wish to buy a good or service in the near future, is the intention to buy. Customers with good intents engage in the act of buying the product, whilst those with

bad intentions refrain from doing so. Most experts concur that one of the most important indicators for forecasting consumer behaviour is purchasing intentions. [16]. However, [18] shown in their study that consumer purchasing behaviour (confidence in environmentally friendly product performance) was not significantly influenced by customer purchase intents, and green behaviour was not significantly influenced by environmental views.

H₃ = The purchase intention of consumers is related to their ecological behavior when buying green cosmetics.

The Relationship between Ecological Behavior and Environmental Knowledge

The general comprehension of the facts, ideas, and relationships pertaining to the natural world and its main habitats is known as environmental knowledge, as was previously explained. This suggests that greater ecological responsibility can result from heightened environmental consciousness. [17]. In their research, [25] They found that consumers' intended purchases were influenced by their environmental attitudes, which were positively and significantly impacted by their environmental knowledge and attitudes. However, a study by [26] revealed a slight but direct relationship between consumers' ecological attitudes towards purchasing green items and their level of environmental awareness. Consequently, these results imply that some consumers who think they know a lot about the environment might buy eco-friendly products even though they don't think well of them.

H₄ = The variable of consumer ecological behavior is thought to positively influence consumer knowledge of the environment.

The Relationship between Ecological Behavior and Environmental Concern

People who are concerned about the greenhouse effect think that the problem ought to be addressed right away [27]. In a similar vein, [1] discovered that the mediation model showed that the relationship between present environmental behaviour and future intentions to buy green products was mediated by the desire to buy green products, a lifestyle that is environmentally based, and the desire to pay more for green products. Other studies, however, indicate that there is little to no correlation between ecological behaviour and attitudes or environmental concerns [21]. Furthermore, the study from [26] indicates that consumers' opinions towards green items they plan to buy are significantly influenced indirectly by environmental concerns.

H₅ = Consumer awareness of the environment is positively influenced by the variable of consumer ecological behaviour

The Relationship Between Environmental Knowledge and Purchase Intention

Studies by [28], [29], and [30] sought to investigate the relationship between Environmental Knowledge, Green Brand Image, Attitudes towards Green Products, and Green Purchase Intention in promoting interest in purchasing eco-friendly cosmetics and body care products. The results showed that purchase intentions for green items are not directly impacted by environmental knowledge in a statistically meaningful way [31]. This contrasts with the results of a study by [25], which showed that the environmental knowledge mediation variable significantly affected the intention to buy.

H₆ = The variable of environmental knowledge is significantly related to the intention to buy green products.

The Relationship Between Environmental Concern and Purchase Intention

According to the mediation model used in the studies by [1] and [32], the relationship between current ecological behaviours and future intentions to buy green products was mediated by the propensity to buy environmentally friendly products, eco-conscious lifestyles, and the willingness to invest more in green products [33]. However, some studies have indicated a weak to moderate relationship between people's ecological behaviours and their attitudes or concerns about the environment [21]. Furthermore, studies by [26] have suggested that customers' ecological views on their intentions to purchase green items are not significantly influenced by environmental concerns.

H_7 = *The variable of environmental concern is hypothesized to have a significant influence on the intention to buy green cosmetics.*

Effectively expressing specific events, situations, attitudes, beliefs, or behaviours that could influence other situations and inspire a desire to bring about change is a sign of a well-constructed conceptual model [27];[28]. This study's conceptual model is a variation of the framework for implementing green marketing and examining how it affects consumers' inclinations to buy eco-friendly items [29].
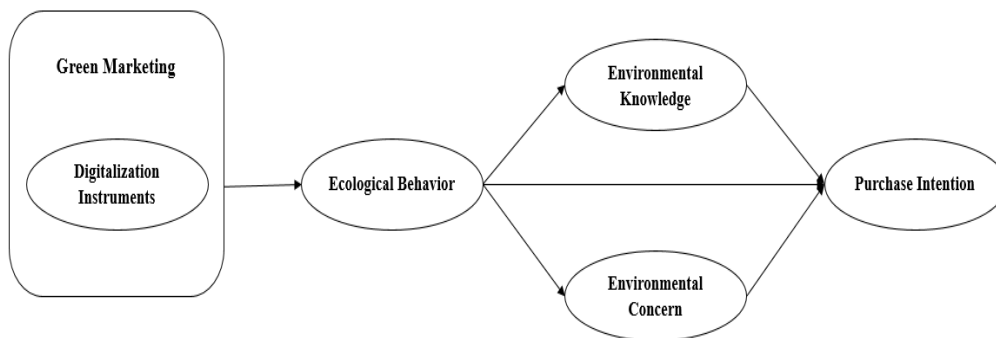
Fig. 1. Conceptual model (modified from [1])

Figure 1's conceptual model illustrates the elements that influence consumers' inclination to buy eco-friendly goods, which in turn influences their intention to buy eco-friendly cosmetics. Ecological behaviour is the dependent variable in this model, and digitalisation tools and other aspects of green marketing are the independent factors. The first framework includes a number of factors that could impact the intention to purchase eco-friendly products, including Consumer Ecological Behaviour, which includes being willing to pay higher prices for eco-friendly products, changing one's lifestyle, and consistently purchasing eco-friendly products [30]. However, by including variables that potentially affect consumers' purchasing intentions with knowledge of environmentally friendly items and awareness of their relevance, the dependent variable was modified [31]. As references for this study paper, the environmental knowledge and environmental concern variables were taken from a number of journals published by [28], [29], [25], and [32]. Product policy instruments, communication policy instruments, and digitalisation instruments make up the independent variables in the original model. However, by focussing solely on the Digitalisation instrument variable in this study, changes were made

to the independent variables. This choice was made because it was thought that the Product Policy Instruments variable was less suitable for the study's goal, while the Communication Policy Instrument variable had less of an impact on other variables.

3 Methodology

An online questionnaire disseminated via docs.google.com was used to randomly choose the samples for this investigation, which was carried out in Indonesia. The Partial Least Square-Structural Equation Modelling (PLS-SEM) approach was used to determine the number of study samples, which required a minimum of 400 samples. Proportionate stratified random sampling, which is appropriate for populations with non-homogeneous and proportionately stratified members and online data collecting, was the sample method employed in this study. Questionnaires given to 423 respondents who met the following criteria were used as the study's primary data source: they had to be at least 17 years old, have bought green cosmetics products at least once, and have heard about them from advertisements and journals. Secondary data sources included journals, articles, literature, and the internet.

4 Results

423 Indonesians who satisfied the predefined requirements were chosen to participate in this survey as respondents. According to the respondents' gender distribution, 39.2% were men and 60.8% were women. In terms of age distribution, the largest proportion of respondents (47.8%) were between the ages of 21 and 24. Next in line were those between the ages of 25 and 30 (24.8%), over 45 (11.8%), 16 and 20 (9%), and 35 and 40 (6.6%). According to their ultimate educational attainment, the respondents are distributed as follows: the majority (55.3%) finished senior high school, followed by higher degree educations (Bachelor, Master, or Doctorate) at 35.2%, diploma education at 8.3%, and junior high school at 1.2%.

4.1 Direct Effect Hypothesis Testing

At this point, the bootstrapping approach was used to test the prepared hypotheses. The significance threshold (A) was set at 0.10, the crucial t-value was less than 1.66023, the null hypothesis (H0) had a significant effect, and the alternative hypothesis (H1) had an insignificant effect. The tests were carried out using SmartPLS 3.3 software.

Table 1. Direct Effect Hypothesis Testing.

	Original Sample	T Statistics	P Values	Outcome	Conclusion
H1. Digitalization Instrument (X_1) has a positive effect on Ecological Behavior (Y_1)	0.388	9.340	0.000	Accepted	Significant influence
H2. Digitalization Instruments (X_1) has a positive effect on Purchase Intention (Z)	0.247	4.178	0.000	Accepted	Significant influence
H3. Ecological Behavior (Y_1) has a positive effect on Purchase Intention (Z)	0.642	11.153	0.000	Accepted	Significant influence
H5. Ecological Behavior (Y_1) has a positive effect on Environmental Knowledge (Y_2)	0.135	2.745	0.006	Accepted	Significant influence

	Original Sample	T Statistics	P Values	Outcome	Conclusion
H6. Ecological Behavior (Y_1) has a positive effect on Environmental Concern (Y_3)	0.694	23.851	0.000	Accepted	Significant influence

Five hypotheses—Hypothesis 1, Hypothesis 2, Hypothesis 3, Hypothesis 4, and Hypothesis 5—were shown to have a substantial impact, as seen in Table 1 above. However, it was shown that neither Hypothesis 6 nor Hypothesis 7 had a favourable impact on the purchase intentions of consumers.

4.2 Indirect Effect Hypothesis Testing

This study paradigm has a mediation effect, which means that intermediate factors mediate the relationship between exogenous and endogenous variables. This means that exogenous variables can influence endogenous variables directly or indirectly. With the hypothesis that H0 has a significant effect and H1 has an insignificant effect, the mediation effect was examined using Smart PLS 3.3 software. A significance threshold of A = 0.10 and a critical t-value of $t_{0.10} < 1.66023$ were used.

Table 2. Indirect Effect Hypothesis Testing.

	Original Sample	T Statistics	P Values	Outcome	Conclusion
H4. Ecological Behavior (Y_1) is a mediator of a positive relationship to consumer purchase intentions (Z)	0.249	7.148	0.000	Rejected	Insignificant influence
H6. Environmental Knowledge (Y_2) is a mediator of a positive relationship to consumer purchase intentions (Z)	0.000	0.009	0.992	Rejected	Insignificant influence
H7. Environmental Concern (Y_3) is a mediator of a positive relationship to consumer purchase intentions (Z)	0.012	0.299	0.765	Rejected	Insignificant influence

Ecological Behaviour (Y1) as a mediator of the significant relationship between Digitalisation Instruments (X1) and Consumer Purchase Intentions (Z); Environmental Knowledge (Y2) as a mediator of the significant relationship between Ecological Behaviour (Y1) and Consumer Purchase Intentions (Z); and Environmental Concern (Y3) as a mediator of the significant relationship between Ecological Behaviour (Y1) and Consumer Purchase Intentions (Z) are the three hypotheses that are being tested, as indicated in Table 2 above. None of the hypotheses had a substantial impact, according to the findings of the Indirect Effect hypothesis test.

5 Discussion

There is no discernible indirect relationship between environmental awareness variables and customer purchase intentions, according to the test results in Table 2. This suggests that customer buying intentions have not been successfully attracted by government initiatives to increase awareness of ecologically friendly items [24]; [25]. In order to raise customer awareness and encourage purchasing intents, it is advised that the government keep offering information and solutions pertaining to eco-friendly items. In the end, this might facilitate the successful execution of the suggested green economic initiative. The hypothesis's results are consistent with other studies by [1];[23], which found a connection between green marketing and customers' ecological behaviour and how it affects their propensity to buy green products in the future.The following elements were taken into consideration at the consumer level: the desire to pay more for green products, adopt an eco-friendly lifestyle, and purchase eco-friendly products. Furthermore, digital tool components were incorporated into green marketing since they not only offer usefulness but also have ecological benefits by using less paper and energy [15];[20];[21], indicating that consumer attitudes and green marketing have a positive impact on Indonesian consumers' intentions to buy green products. The study also discovered that the impact of green marketing on consumers' intentions to buy eco-friendly items can be mediated by the consumer attitude variable. "The likelihood that consumers will intend to purchase a product or service in the near future" is the definition of purchase intention." While negative intents prevent customers from making the purchase, positive intentions motivate them to do so. Purchase intentions are often regarded by experts as a crucial predictor of consumer behaviour [16]; [22].

Table 2 demonstrates that environmental concern variables have no discernible indirect influence on consumers' willingness to make purchases. Since the existing level of awareness is insufficient to influence consumer purchasing decisions, this emphasises the necessity for the government to further educate consumers on the advantages and significance of environmentally friendly products, particularly green cosmetics. To do this, it is advised that the government keep up its informational and outreach programs that try to raise consumer knowledge and comprehension of how their purchases affect the environment [26];[27]. By doing this, customers might be more inclined to buy environmentally friendly goods, which would ultimately help the government's proposed green economy initiative be implemented successfully [28].

With the role of environmental knowledge and environmental concern as mediator variables, the overall model in this study sought to ascertain the effects of ecological behaviour and digitalisation tools on consumers with purchase intentions for green cosmetics, such as skincare, hair care, or body care. Digitalisation tools and green cosmetics purchase intentions, digitalisation tools and ecological behaviour, and ecological behaviour and consumer purchase intentions were all found to have a significant direct impact, according to the results of hypothesis testing. Additionally, the hypothesis testing results demonstrated that neither environmental knowledge nor environmental concern variables, which were used as mediators of ecological behaviour, had a significant impact on consumer purchase intentions.

5.1 Managerial Implication

The results of this study provide insight into how customers' intents to purchase green cosmetics are impacted by green marketing that uses digitalisation tools and ecological behaviour, with environmental awareness and concern acting as mediating factors. Digitalisation tools and green cosmetics buying intents, digitalisation tools and ecological behaviour, and ecological behaviour and consumer purchase intentions are all significantly correlated, according to the results of hypothesis testing. According to these findings, the creation of a digitalisation tool for marketing ecological and green cosmetics can persuade customers to think about and plan to buy eco-friendly products, live eco-friendly lives, and be prepared to pay more for eco-friendly goods.

These results imply that a large number of respondents or members of the public are still ignorant of the ways in which human behaviour, role, or impact affects environmental conditions or ecosystems, as well as the facts, ideas, or fundamentals of recycling that serve as the cornerstones of environmentally friendly behaviour. Therefore, in order to gradually change people's mindset and intent to buy eco-friendly products, it is crucial to start a shift in people's lifestyles towards an environmentally friendly orientation by trying to reduce the use of products that pose a risk of environmental damage. Governments and environmentally concerned businesses must also comprehend customer views regarding the creation, manufacturing, and distribution of green products in order to create communication strategies that will grab consumers' attention.

6 Conclusion

With environmental knowledge and concern acting as mediator variables, the overall model in this study sought to ascertain how ecological behaviour and digitalisation tools affected consumers' intentions to buy green cosmetics, whether they were for body, hair, or skincare. There is a significant direct relationship between digitalisation tools and the intention to buy green cosmetics, a significant direct relationship between digitalisation tools and ecological behaviour, and a significant direct relationship between ecological behaviour and consumer purchase intentions, according to the findings of hypothesis testing. The findings of the hypothesis test then showed that environmental knowledge, a mediator variable of ecological behaviour, had no significant impact on consumer purchase intentions. This was also true for environmental concern variables, which also had no significant impact on consumer purchase intentions when used as a mediator of ecological behaviour.

In order to raise consumer awareness and encourage them to purchase environmentally friendly products, particularly green cosmetics, the government should keep disseminating information and socialisation about these products, according to the test's overall results. This can help the government put suggested green economy initiatives into action. Furthermore, in order to achieve a green economy by 2030, the policies and actions implemented under the Indonesia Green Growth Program Agreement depend heavily on environmental behaviour principles.

To give a more thorough explanation of the elements that can affect consumers' intents to buy green cosmetics, it is advised that future research investigate items other than those examined in this study. Furthermore, a more thorough literature analysis can be carried out to look into the factors that might influence how consumers behave while purchasing eco-friendly goods.

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