

# Analysis Of Factors Affecting Consumer Intention In Using Environmentally Friendly Products

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**Abstract**—This study aims to determine what factors influence consumer intentions to use environmentally friendly products. This research is a quantitative research with 300 respondents who are users of Philips My Care Led Bulb products. Data analysis was performed using descriptive statistical analysis, SEM (Structural Equation Model) analysis, and PLS (Partial Least Square). The results show that social approval variables have a positive effect on consumer attitudes, social approval also has a positive effect on behavioral intention, ease of use has a positive and significant impact on consumer attitudes, while ease of use has a positive but not significant effect on behavioral intention, and risk has a positive effect on consumer attitudes, and also behavioral intentions. Attitude has a positive and significant effect on behavioral intention.

**Index Terms**—Environmentally friendly products, social approval, ease of use, risk, and behavioral intention

## I. INTRODUCTION

Environmental problems that have occurred so far, such as global warming, have made consumers more concerned about the environment, because they believe the products used are produced from a process that may contribute to environmental damage. Many people are aware of the negative effects of using chemicals, such as synthetic chemical fertilizers and pesticides and growth hormones in agricultural production, on human health and the environment. The solution that can be done is environmentally friendly innovation in fulfilling consumer desires for environmentally friendly products. The widespread concern of consumers to protect the natural environment and highly emphasized sustainable consumption have also triggered changes in consumer purchasing preferences. Recently consumers are showing unprecedented interest previously in purchasing environmentally friendly products and conducting transactions in environmentally conscious organizations.

## II. LITERATURE REVIEW

### A. Green Innovation

Green innovation or usually also with green innovation, ecological innovation, environmental innovation or sustainable innovation is the application of activities to achieve economic growth, resource conservation and environmental protection with new ideas and technologies. Green Innovation or eco-innovation or what is commonly referred to as green innovation is the creation of new products or significantly improving products. Not only focusing on products, but also focusing on the creation and significant development of new processes, marketing methods, company methods in business practices [1].

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### B. Behavioral Intention

Behavioral intention is a person's desire to use information technology with the goals he wants. behavioral intention as a measure of the strength of a person's intention to perform a certain behavior [2]. Behavioral intention is the knowledge of the new system, its use, its beneficial features and the perception of others about the new system is an important issue that affects the user's intention to use or not to use the new system [3]

### C. Attitude

Consumer behavior includes many things, one of which is consumer attitudes. Attitude is an important thing in determining consumer buying interest. Attitude is a trait or readiness to respond to a situation with a prepared reaction, attitude is a person's way of feeling, seeing, and interpreting certain situations [4].

### D. Social Approval;

Social approval is interest in and sympathy for the welfare of others. Where individuals can be sensitive to the problems and difficulties of others around them and are willing to provide assistance to alleviate problems [5].

### E. Ease Of Use

Ease of use is defined as a person's belief that if they use a system they will be free from effort [6].

### F. Risk

Risk is a consumer's perception of uncertainty and the negative consequences that may be received on the purchase of a product or service [7].

### G. Relationships Social Approval and Attitude

Members of a social system generally tend to show a sense of belonging by being part of activities that are considered the norm in themselves. Social interaction and information exchange can play an important role in promoting an innovation, and in turn motivating individuals to adopt that innovation [8]. Stated that green knowledge and social acceptance as objective and subjective knowledge are very important in forming positive attitudes in adopting green products. Arbuthnot (2009) in his research found that communication between people in a social system needs to be done to get sustainable issues. When consumers have a lot of knowledge about sustainability issues, awareness will increase and lead to an increase in individual attitudes. Wustenhage et al., (2007) in studying the same subject mentioned that social acceptance may behave as an inhibiting factor in achieving increased adoption of renewable energy in most countries. Ghoni (2012) in his research found that social factors have a positive and significant effect on consumer attitudes and behavior. Small groups, families and the role and social status of

consumers also affect consumer attitudes in using a product. Based on the discussion above, the following hypothesis can be proposed:

H<sub>1</sub>: Social approval has a positive effect on attitude

#### H. Relationship Social Approval and Behavioral Intention

Sarafino (1994) says that social support can refer to feelings of comfort, concern, appreciation, or assistance that a person receives from other people or groups. Handono & Bashori (2013) EXPLAIN that social support is an information or response from other people who are loved and loved, who value and respect, and include communication relationships and interdependent situations. According to Ozaki (2011) found that social influence has a very positive impact on user behavioral intentions towards green innovation adoption. Mallett (2007) also emphasizes the social acceptance of renewable energy innovations. Wustenhage et al., (2007) in studying the same subject mentioned that social acceptance may behave as an inhibiting factor in achieving increased adoption of renewable energy in most countries. Fisher & Price (1992) suggest that the immediate adoption of an innovation is strongly influenced by the social benefits that come with using that innovation. Claudia et al., (2011) in his research found that social influence positively affects consumers' willingness to choose and adopt technology. Based on the discussion above, the following hypothesis can be proposed:

H<sub>2</sub>: Social approval has a positive effect on behavioral intention

#### I. Relationship between Ease of Use and Attitude

Ease of use is a measure of the ease with which a person operates something. Moreover, ease of use indicates the extent to which an innovation is perceived as easy to learn, understand, and operate (Venkatesh & Davis, 2000). Ease of use is a person's belief that using a particular system is easy (free effort). In general, in various research contexts, ease of use is often tested for its effect on two other variables, namely usability and usage attitude. As research conducted by Pinho & Soares (2011) found that ease of use was proven to have a positive and significant effect on usability and usage attitudes. In line with these findings, Mansour (2016) says that ease of use also has the same effect in the banking context. Ease of use affects consumer attitudes in using internet banking. Jaiswal et al., (2021) conducted a study related directly affects consumer

H<sub>3</sub>: Ease of use has a positive effect on attitude

#### J. Relationship between Ease of Use and Behavioral Intention

Davis (1989) defines ease of use as a level where someone believes that technology can be easily understood and easy to use. Ozaki (2011) in studying the adoption of green innovations also suggests that ease of use is an important

thing to do, because ease of use is also one of the determining factors for consumers to use a product. Velayudhan (2003) in studying the diffusion of solar lanterns found that the ease or convenience of using solar lanterns is not a significant reason for consumers to buy/adopt them. Mansour (2016) explains that usability is an important factor in the formation of usage attitudes and consumer intentions in using a product. In the banking context, usability has a positive and significant impact on attitudes and behavioral intentions of consumers in the use of internet banking. Wang et al., (2018) in their research found that perceived ease of use can positively influence consumer behavioral intentions in using new technology. New technologies can be considered useful only when they are easy to adopt and suitable for customer use. Based on the discussion above, the following hypothesis can be proposed

H<sub>4</sub>: Ease of use has a positive effect on behavioral intention.

#### K. Relationship between Risk and Attitude

Perceived risk is the negative feeling of consumers when adopting a technology or innovative product. In using new technology users will naturally feel uncertainty or anxiety and may have a negative relationship with their decision-making approach. Laroche et al., (2010) found that the more consumers perceive the risk of a new product, the lower the attitude towards adopting a technology. The role of perceived risk is also emphasized as a major barrier to accepting online or electronic shopping behaviour, risk having an influence on consumer attitudes and adoption intentions. Based on the discussion above, the following hypothesis is proposed:

H<sub>5</sub>: Risk has a positive effect on attitude

#### L. Relationship between Risk and Behavioral Intention

Claudy (2011) found that perceptions of social risk have an influence on product use. Consumers tend to have concerns related to product use, product benefits and things that may later make neighbors worry. According to Ozaki (2011), the uncertainty of potential users about the quality of green electricity often causes anxiety and hinders consumer decisions to adopt the use of green electricity. A previous study conducted by Yildirim (2019) confirmed that perceived risk refers to the customer's belief that technology has little risk. Consumers using new services or products are concerned about safety and take risks into account. Based on the discussion above, the following hypothesis is proposed:

H<sub>6</sub>: Risk positive effect on behavioral intention

#### M. Relationship of Attitude as a Mediation Variable

According to Suprapti (2010) attitude is an expression of a person's feelings that reflect his likes or dislikes towards an

object. Because a person's attitude is the result of a psychological process, it cannot be observed directly but must be inferred from what is said or done. Intentions are formed by attitudes, subjective norms and behavioral control. Trust and consumer perceptions of products, and risks determine consumer attitudes and consumer intentions in using a product (Putri, 2014). Polatoglu & Ekin (2001) explain that the customer's attitude (attitude) is created from a person's belief in the object and the perceived importance (weight) in making the decision to adopt the object. When consumers have positive perceptions about a particular technology, their adoption intention increases and vice versa, this in turn is more likely to translate into actual adoption behavior towards that technology (Liu et al., 2018; Wang et al., 2018). Based on the above discussion, the following hypothesis is proposed

H<sub>7</sub> Attitude a positive effect on behavioral intention

A previous study conducted by Han (2016) stated that green knowledge and social acceptance as objective and subjective knowledge are very important in forming positive attitudes for green product adoption. . Ashinze et al., (2021) found that attitude as an intervening variable had a significant mediating effect on the relationship between relative advantage and consumer behavioral intentions. Social interaction and information exchange can play an important role in promoting an innovation, and in turn motivating individuals to adopt the innovation (Bandura, 1986). Phau et al., (2011) stated that attitudes have a positive correlation with purchasing behavior of green products. According to Ayoun et al., (2015) there is a significant positive relationship between consumer attitudes and consumer purchase intentions. Similar results were also obtained by Laksmi (2015), the more positive a person's attitude towards the product is, the higher the intention to buy the product. Based on the discussion above, the following hypothesis is proposed:

H<sub>8a</sub>: Attitude mediates the relationship between social approval and behavioral intention

According to Davis (1989) perception of convenience is the degree to which a person believes that using a particular system is free from effort. The most important thing for the user is the amount of effort he expends to expend in using a system. Cheng et al., (2019) argue that consumers are more likely to adopt new technology or related products in their shopping choices when they perceive it to be simple and convenient to use. Ulumiyah (2016) in his research found that there was a positive and significant effect of the ease of use variable on consumer attitudes. Jaiswal et al. (2021) revealed that consumer intentions are directly and indirectly influenced by the predictor variables of attitudes, perceived usefulness, and perceptions of ease of use. Based on the above discussion, the following hypothesis is proposed:

H<sub>8b</sub>: Attitude mediates the relationship between ease of use and behavioral intention

Rong et al., (2007) stated that risk perception has a negative influence on consumer confidence in using a product. Low consumer confidence will affect the decision to use the product. Kim et al., (2010) through their research stated that perceived benefits, perceived risk have a direct or indirect influence on attitudes and consumer interest in using technology in carrying out their activities. Jaiswal et al., (2021) revealed that good intentions are directly and indirectly influenced by predictor variables of attitude, perceived usefulness, perceived ease of use, and risk.. Based on the discussion above, the following hypothesis is proposed:

H<sub>8c</sub>: Attitude mediates a positive relationship between risk and behavioral intention

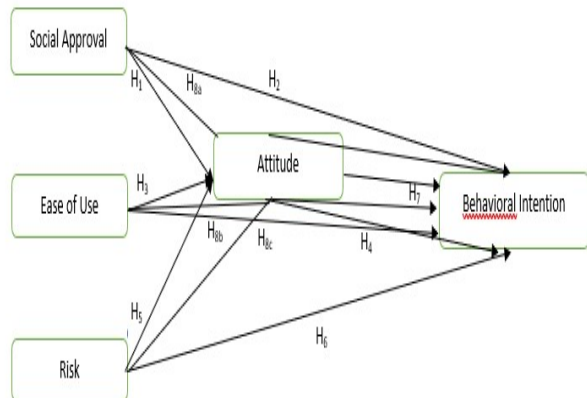
### III METHODOLOGY

This study uses a quantitative approach. The data used is primary data, namely data obtained directly from the object. In this study, data were collected using a questionnaire. Questionnaire is a data collection technique where everyone is asked to answer the same questions in a predetermined order [8]. The questionnaires were distributed using Google Forms and distributed online through social media such as Instagram and WhatsApp. To measure consumer responses, the questionnaires were presented in the form of a Likert scale.

The sample used in this study is some users who use Philips Mycare Led Bulb products in Indonesia. The method for determining the number of samples in this study is based on the theory of Hair et al., (2010), which recommends a minimum sample size ranging from 100 to 200 observations depending on the number of indicators estimated [9].

Determination of the research sample is done by multiplying the total research indicators by 5 (as the minimum sample) and multiplied by 10 (as the maximum sample). So the number of samples in this study are as follows: Minimum sample: 5 x total indicators of questions or statements. Maximum sample: 10 x total indicator questions or statements So: Minimum sample: 5 x 15 = 75 people. Maximum sample: 10 x 15 = 150 people

Referring to the above sample determination formulation, the number of samples to be taken by the researcher is 300 respondents. The data analysis method used includes descriptive analysis and quantitative analysis consisting of validity, reliability, analysis using SEM, and PLS.



2. CONVERGENT VALIDITY

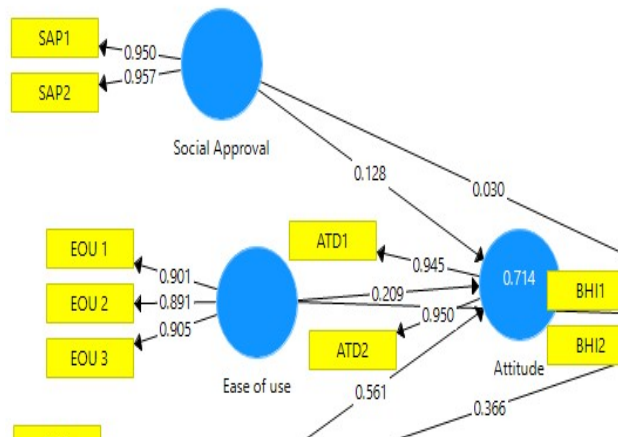


Table 5 initial Item Loading and AVE

Variable	Indicator	Loading faktor	AVE
Social approval	SAP1	0,950	0,909
	SAP2	0,957	0,909
Ease of use	EOU1	0,901	0,808
	EOU2	0,891	0,808
	EOU3	0,905	0,808
Risk	RIS1	0,922	0,847
	RIS2	0,905	0,847
	RIS3	0,933	0,847
Attitude	ATD1	0,945	0,897
	ATD2	0,950	0,897
Behavioral intention	BHI1	0,969	0,940
	BHI2	0,940	0,940

IV. RESULTS AND DISCUSSION

A.Results

1. DESCRIPTIVE ANALYSIS

Table 1 Characteristics of Respondents by Gender

Description	Total	Presentase%
Male	201	67, %
Female	99	33%
Total	300	100%

The number of respondents who are differentiated by gender is shown in table 1 where the male sex has 201 respondents or 67% and the female is 99 respondents or 33%.

Description	Total	Presentase %
Yes	227	75,7 %
No	73	24,3 %
Jumlah	300	100 %

Based on table 3, it can be seen that the majority of respondents in this research know that the Philips MyCare LED Bulb product is an environmentally friendly product with a total of 227 respondents or 75.7% and respondents who do not know that the Philips MyCare LED Bulb product is an environmentally friendly product, a total of 73 respondents or 24, 3%

In table 5 all indicators have a loading factor of more than 0.7 and the AVE value for each variable shows a number greater than 0.5, so no indicators will be excluded. The results of the test show that all indicators of the instrument have passed the convergent validity test.

3. VALIDITAS DISKRIMINAN

Table 6 Cross Loading

Konstruk	ATD	BHI	EOU	RIS	SAP
ATD1	0,94	0,78	0,71	0,76	0,61
ATD2	0,95	0,80	0,77	0,80	0,67
BHI1	0,80	0,97	0,67	0,76	0,59
BHI2	0,82	0,97	0,69	0,78	0,59
EOU 1	0,68	0,67	0,90	0,80	0,63
EOU 2	0,68	0,58	0,89	0,74	0,71
EOU 3	0,74	0,65	0,90	0,75	0,69
RIS1	0,75	0,72	0,79	0,92	0,62
RIS2	0,71	0,69	0,79	0,91	0,63
RIS3	0,82	0,78	0,78	0,93	0,66
SAP1	0,61	0,57	0,70	0,65	0,95
SAP2	0,67	0,59	0,73	0,67	0,96

Based on table 6, the value of cross loading on each item has a greater value when associated with the dependent variable than when associated with other variables. Thus, it shows that each item is correct in explaining the construct of each variable and proves that the discriminant validity of all items is valid.

4. Uji RELIABILITAS

Tabel 7 Composite Reliability

Variable	Cronbach's Alpha	rho_A	Composite Reliability	AVE
SAP	0.90	0.90	0.95	0.91
EOU	0.88	0.88	0.93	0.81
RIS	0.91	0.91	0.94	0.85
ATD	0.89	0.89	0.95	0.90
BHI	0.94	0.94	0.97	0.94

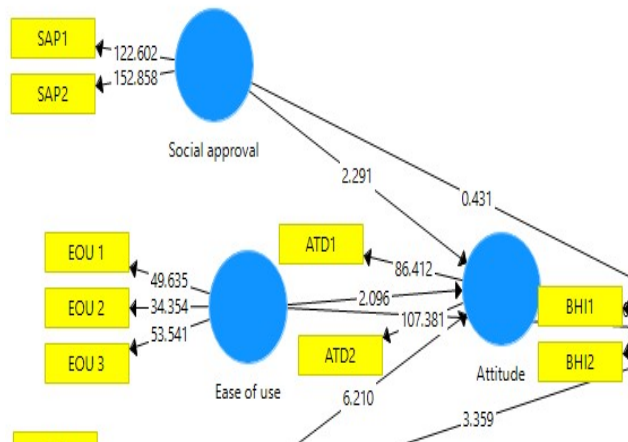
Table 7 shows that the value of all variables in reliability testing using either Cronbach's alpha or composite reliability > 0.70, and validity testing using AVE is > 0.50. Therefore, it can be concluded that the variables tested are valid and reliable, so it can be continued to test the structural model.

Tabel 8 R<sup>2</sup> Variabel Dependen

	R Square	R Square Adjusted
Behavioral intention	0.73	0.73

Based on table 8 above, the value of variable behavioral intention is 0.73. This shows that the variables of social approval, ease of use, risk give a value of 73% influence on behavioral intention. While the remaining 27 percent is explained by other variables outside of this study.

5. Significance Test



The criteria for accepting or rejecting the hypothesis are if the significance value of t value > 1.96 and or p-value 0.05 at significance level 5% (α5%). Then Ha is accepted and Ho is rejected, on the other hand if the tvalue < 1.96 and or p-value > 0.05 at significance level 5% (α5%) then Ha is rejected and Ho is accepted. (Abdillah, 2018). The following are the results of the hypothesis testing proposed in this study.

Tabel 9 Path Coefficient

Variable	Original Sample (O)	T-Statistik	P Value	Description
SAP -> ATD	0.13	2.14	0.03	Significant
SAP -> BHI	0.03	0.43	0.67	Not significant
EOU -> ATD	0.21	2.00	0.05	Significant
EOU -> BHI	-0.08	0.82	0.42	Not significant
RISK -> ATD	0.56	6.11	0.00	Not significant
RISK -> BHI	0.37	3.52	0.00	Significant
ATD -> BHI	0.57	5.96	0.00	Significant

Table 10 (Total Effect)

Variabel	Original Sample (O)	T-Statistik	P Value	Keterangan
SAP -> ATD	0.13	2.14	0.03	Significant
SAP -> BHI	0.03	0.43	0.67	Not significant
EOU -> ATD	0.21	2.00	0.05	Significant
EOU -> BHI	-0.08	0.82	0.42	Not significant
RISK -> ATD	0.56	6.11	0.00	Significant
RISK -> BHI	0.37	3.52	0.00	Significant
ATD -> BHI	0.57	5.96	0.00	Significant

Table 11 Inner Model

Variable	Original Sample (O)	T-Statistik	P Value	Description
SAP -> ATD -> BHI	0.07	1.93	0.05	Significant
EOU -> ATD -> BHI	0.12	1.98	0.04	Significant
RIS -> ATD -> BHI	0.32	4.12	0.00	Significant

Tabel 12 Variable Intervening

Variable	Description
Social approval	Full mediation
Ease of use	Full mediation
Risk	Partial mediation

B. DISCUSSION

1. Effect of social approval on attitude

The results of this study indicate that the social approval has a positive and significant effect on the consumer attitude variable. This means that the higher the social approval perceived by consumers, the higher the consumer's attitude in using Philips Mycare LED Bulb products. The results of this study are in accordance with previous research conducted by Han (2016) which states that green knowledge and social acceptance as objective and subjective knowledge are very important in forming positive attitudes in adopting green products.

2. Effect of social approval on behavioral intention

The results of this study indicate that the variable social approval has a positive but not significant effect on the behavioral intention. This means that the higher the social approval perceived by consumers, the less influence on consumer behavior intentions in using Philips Mycare LED Bulb products. According to Yang et al., (2011), behavioral intention is the overall behavior that indicates whether a consumer will repurchase the same product or service in the future. The results of this study are also in accordance with research conducted by Badri (2014) in his research he found that the influence of the social environment has a positive but not significant relationship with consumer intentions in using a product

3. Effect of ease of use on attitude

The results of this study indicate that the ease of use variable has a positive and significant effect on the attitude variable / consumer attitude. This means that the higher the social approval perceived by consumers, the higher the consumer's attitude in using Philips Mycare LED Bulb products. Aydin & Burnaz (2016) conducted a study on the adoption of mobile payment systems, and the findings highlight the importance of ease of use and usability in attitude development. Furthermore, a study conducted by Ashinze et al., (2021) investigates the challenges to the growth of renewable energy in Nigeria, which specifically analyzes the factors that influence the intention to use renewable energy in Nigeria and finds that ease of use has a positive and significant effect on consumer attitudes.

4. Effect of ease of use on behavioral intention

The results of this study indicate that the ease of use variable has a positive but not significant effect on behavioral intention variables. This means that the higher the ease of use perceived by consumers, the less influence on consumer behavioral intentions in using Philips Mycare LED Bulb products. This research is in line with the research conducted by Velayudhan (2003) in studying the diffusion of solar lanterns, which found that the ease or convenience of using solar lanterns is not a significant reason for consumers to buy/adopt them.

5. Effect of risk on attitude

The results of this study indicate that the variable risk has a positive and significant effect on the variable attitude/ consumer attitudes. This means that the less risk perceived by consumers, the higher the consumer's attitude in using Philips Mycare LED Bulb products. In research conducted by Roy et al., (2017) The role of perceived risk is also emphasized as a major barrier to accepting online or electronic shopping behavior, risk has an influence on consumer attitudes and adoption intentions.

6. Effect of risk on behavioral intention

The results of this study indicate that the variable risk has a positive and significant effect on the variable attitude / consumer attitudes. This means that the less risk perceived by consumers, the higher the intention of consumer behavior in using Philips Mycare LED Bulb products. In research conducted by Chang & Chen (2008), and Gregg & Walczak (2008) found that the higher the belief that green products are less friendly to the environment, do not meet the criteria for being environmentally friendly, can pollute the environment, and other negative reputations will result in a decreased desire to buy green products). buy the product

7. The effect of attitude on behavioral intention

The results show that the attitude has a positive and significant impact on the behavioral intention, which means that the higher the consumer's attitude towards using Philips products, the higher the consumer's behavioral intention to use Philips Mycare LED Bulb.. The results of this study are in accordance with the results of previous research conducted by Aldhmour and Sarayrah (2016) which showed that attitudes affect consumer interest in using a product

8. The influence of attitude as an intervening variable on behavioral intention

The resultsmediation model attitude on behavioral intention is full mediation variables social approval, and ease of use, while for the risk variable the attitude variable does not represent full mediation because the risk is able to directly affect the dependent variable without going through or involving intervening variables.

V.CONCLUSION

This study aims to examine the effect of several consumer characteristics, namely the variables of social approval, ease of use, and risk on attitude and to examine their impact on behavioral intention. Based on the results of hypothesis testing contained in the previous chapter, it can be formulated as follows:

1. Social approval has a positive and significant effect on the consumer attitude variable. This means that the higher the social approval perceived by consumers, the higher the consumer's attitude in using Philips Mycare LED Bulb products.
2. Social approval has a positive and significant effect on the behavioral intention. This means that the higher the social approval perceived by consumers, the higher the intention of consumer behavior in using Philips Mycare LED Bulb products.
3. Ease of use has a positive and significant effect on attitude/ consumer attitudes. This means that the higher the social approval perceived by consumers, the higher the consumer's attitude in using Philips Mycare LED Bulb products.
4. Ease of use has a positive but not significant effect on the behavioral intention. This means that the higher the social approval perceived by consumers, the less influence on consumer behavioral intentions in using Philips Mycare LED Bulb products.
5. Risk has a positive and significant effect on attitude/ consumer attitudes. This means that the less risk perceived by consumers, the higher the consumer's attitude in using Philips Mycare LED Bulb products.
6. Risk has a positive and significant effect on attitude/ consumer attitudes. This means that the less risk perceived by consumers, the higher the intention of consumer behavior in using Philips Mycare LED Bulb products.
7. Attitude has a positive and significant effect on the behavioral intention. This means that the higher the attitude of consumers to be interested in using Philips products, the higher the behavioral intention of consumers to use the Philips Mycare LED Bulb.
8. mediation model Attitude towards behavioral intention is full mediation for social approval and ease of use, while for the risk variable the attitude variable does not represent full mediation because the risk is able to directly influence the dependent variable without going through or involving intervening variables.

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