MATRIK: JURNAL MANAJEMEN, STRATEGI BISNIS, DAN KEWIRAUSAHAAN

Homepage: https://ojs.unud.ac.id/index.php/jmbk/index

Vol. 18 No. 1, Februari (2024), 87-103

P-ISSN: 1978-2853
E-ISSN: 2302-8890

Factors that Influence Electric Vehicle Purchase Intention: an Evidence from Indonesia

Emiliana Indri Eryolanda[1)], Alim Gunadi Sukanto[2)], Indah Teasari [3)], Andry Mahyudi [4)], Ariyadi Yudo Purnomo [5)], Istijanto[6)]
[1,2,3,4,5,6] School of Business and Economics, Universitas Prasetiya Mulya, Indonesia
email: eryolanda2@gmail.com

SINTA 2

DOI : https://doi.org/10.24843/MATRIK:JMBK.2024.v18.i01.p07

ABSTRACT

Electric vehicles (EV) are new products that will replace conventional vehicles. Previous studies on factors influencing EVs purchase intention rarely includes the impact of social media factors. This study aims to build a comprehensive model examining factors that influence consumer intention to purchase EVs. Based on the theory of reasoned action and risk-benefit model, this study incorporates social media relevance, vendor trustworthiness, vendor expertise, social influence, and perceptions of EV benefits and risks. Data is collected through online surveys. 295 data were obtained and analyzed by exploratory factor analysis and multiple regression using SPSS. The results show that perceived relevance to social media has the greatest influence on EV purchase intention, followed by perceived benefits and risks, social influence, and vendor expertise, while vendor trustworthiness didn't have a significant impact. This study's result contributes to the knowledge of EV buying factors and offers managerial implications for EV providers' business strategy.

Keyword: factor, purchase intention, social media, theory of reasoned action, electric vehicle

INTRODUCTION

Electric vehicles (EV) have gained more popularity these recent years. The market of EV in some countries has begun to take shape. However, the EV market in Indonesia is still in its infancy. Based on Gaikindo's report on electric car sales, only 705 units were sold in 2019, consisting of 685 units of hybrid type and 20 units of Plug-in Hybrid Electric Vehicle (AHK Indonesien, 2021). Indonesian Transportation Ministry reported that the country had only total 14,400 EVs with 12,464 electric motorcycles and 1,656 electric cars as of mid-November 2021 while they already had about 15.7 million units of passenger car and 115 million units of motorcycle in total on the road at 2020 (Shofa, 2022). The Indonesian Transportation Ministry reported that the increase in electric vehicles to April 2022 was about 5,400 units, thus total electric vehicles in Indonesia were about 20,000 units (Gunawan, 2022). This shows that the EV population in Indonesia is still very low, but the market interest has increased significantly. The Indonesian government itself has officially announced its roadmap to become a major player in the global EV market through the Minister of Industry Regulation No. 27 of 2020, which stated a plan to have annual local production capacity of more than 0.6 million units of electric cars and 2.45 million units of electric motorcycles by 2030 (AHK Indonesien, 2021).

However, as innovative products often carry both positive and negative consequences, it is necessary to analyze factors that can reduce the potential customer's hesitation to adopt EV technology, hence enabling the acceleration of EV adoption in Indonesia.

As customers nowadays are perceptually and behaviorally more engaged to social media, social media platforms are increasingly being used for marketing and advertising of products and services. In an era where technological advances have changed the nature of interaction, social media are becoming new places where government, people, organizations interact with each other socially, politically, educationally and commercially, leading to the exchange of thoughts, information, products and services (Alalwan, 2018). Social media marketing can even result in electronic word-of-mouth which may be useful for introducing technologically-innovative new products like EV. However, the high cost and time spent on social media advertisement (ads), coupled with very low sales when introducing technologically-innovative new products on the market of EV, makes it important to design social media ads that successfully attracts and engages customers, also motivates them to purchase EV despite of the perceived risk. Thus, social media ads may also play an important role to accelerate EV adoption in Indonesia.

A wide range of studies has been done on examining purchase intention of EV using different variables such as attitudes, subjective norms, behavioral control (Bhutto et al., 2022), social influence, technical factors, socio-economic factors (Miranda & Delgado, 2020), among others. Research related to the online engagement impact on EV purchase intention in the U.S has been conducted by Nguyen & Chaudhuri (2019) but the scope of online engagement discussion was only related to e-WOM volume and sentiment. Other research trying to understand the formation of consumer beliefs when facing new technologies was conducted by Featherman et al. (2021). It tried to explore the relation of belief in vendor trustworthiness & expertise in perception of EV adoption's benefits & risks and its subsequent impact on EV purchase intention in the U.S, and suggested that further research can be done by varying the brand, target market, and presentation of information to explore more about the formation of belief in vendor expertise and trustworthiness, and assessments of the technology adoption's risks and benefits. Meanwhile, limited research conducted in Indonesia related to EV purchase intention examined factors such as sociodemographic, financial, technological (Utami et al., 2020), functionality, emotion, cost of ownership and car identity (Febransyah, 2021). Thus, there has been no research that specifically examines the influence of social media advertisement engagement on the EV products purchase intention in Indonesia, when actually social media advertisement has been proven to influence customers especially for first-time purchase of the products (Bughin et al., 2010). Advertisement in social media has been widely used these days to promote products, however its effectiveness to enhance purchase intention of technologically-innovative new products like EV hasn't been observed. It makes engagement on EV social media ads an interesting and important topic to research.

This study tries to analyze the impact of social media ads engagement on EV purchase intention to gain more insight and enrich understanding of EV purchase intention driving factors that has been found by Featherman et al. (2021). The research question that will be answered by this research is "How are the effects of social media ads (measured by perceived relevance) along with perceived risk, perceived benefit, vendor expertise, vendor trustworthiness and social influence on consumer purchase intention of EVs in Indonesia?" It aims to examine the effect of social media ads (measured by perceived relevance) on EV purchase intention in Indonesia, along with other factors that influence the formation of consumer beliefs when facing

new technologies, such as perceived risk, perceived benefit, vendor trustworthiness, vendor expertise and social influence. This study is important because it offers empirical insights for EV marketers to adjust their digital marketing strategy especially on social media advertising to develop meaningful communication that makes customers more engaged, enhances consumer belief in EV adoption and in turn, enhances EV purchase intention. In addition, for EV manufacturers, this research can be taken into consideration for their efforts to continue to develop their brand so that they become the choice of Indonesian consumers. By supporting EV manufacturers and marketers, this research will also contribute to the achievement of Indonesian government targets in the acceleration of EV adoption in Indonesia.

To achieve the objective of this study, the main theoretical framework underlying this research is theory of reasoned action (TRA), because it has been widely applied in innovative technology adoption research thus enabling easy comparison of the research result (Lai, 2017). In addition, it has a long history of application in various field, providing a robust foundation of methodological approach and empirical support. Compared to the theory of technology acceptance model (TAM) which only focus on perceived usefulness and perceived ease of use while ignoring the social influence, TAM doesn't address the intrinsic motivations, so its application in a customer setting, where technologies are adopted not just for completing tasks but also for meeting emotional needs might be limited (Taherdoost, 2018). Meanwhile, compared to the theory of planned behaviour (TPB) which incorporates perceived behavioral control on top of attitude and subjective norm, the theory of reasoned action (TRA) is simpler as it focuses on 2 primary determinants of behavioral intention (attitude and subjective norm) which make it easier to be applied, measured, and communicated, especially where the control over behavior is not an issue or the behavior is under volitional control (Madden et al., 1992).

According to Fishbein & Ajzen (1975), theory of reasoned action is used to understand and predict human behavior by examining the underlying motivation of performing an action (which in this study refers to the actual purchase of EV products). It states that the direct determinant of an actual behavior is the intention to perform it. The intention itself is influenced by attitudes (the way individuals feel towards a particular behavior) and subjective norms (social pressure from relevant groups to perform / not perform the behavior, which in this study is manifested as a social influence variable). Meanwhile, attitude towards a particular behavior is influenced by the evaluation of potential outcomes (positive / negative outcome) and strength of behavioral beliefs regarding the outcomes (whether the outcome is probable).

By referring to the theory of reasoned action, to get people to actually purchase EV products, it's essential to understand factors that influence their purchase intention, which are factors that represent or affect the person's attitude and subjective norm of EV purchase. Regarding this matter, the research of Abzari et al. (2014) showed that marketing communication through social media influences brand attitude and has a significant impact on intention to purchase. Hence, engagement on social media marketing may affect intention to purchase. Consumer engagement itself, according to Watkins et al. (1991) possess similarities with relevance in structure because companies also try to more engaged future customers by enhancing their relevance in consumers' minds. Thus, perceived relevance can be used as operational variables that represent social media ads engagement in this research. It has also been proved to have significant influence towards purchase intention at the research of Alalwan (2018).

In addition, the importance of understanding the drivers of attitude towards purchase behavior also encourages the use of the risk-benefit model as the second theory that underlies

this research. According to the risk-benefit model, a technology acceptance depends on the customer's perception / belief of the risk and benefit (Bruhn, 2007). As perceived risk can be considered as potential negative consequences, perceived benefits can be considered as potential positive consequences of adopting the new technology (M. Featherman et al., 2021). Both may influence customer's belief and their subsequent attitude towards EV purchase.

Sweeney et al. (1999) defined perceived risk as the customer's subjective expectations of a loss. Mitra et al. (1999) found that risks even delay purchase decisions. In the case of EV adoption in the U.S., Featherman et al. (2021) also demonstrated that perceived risk reduces purchase intention, because EV adoption inherent some risks as it's radically innovative technology which requires large expense (for the product purchase and possible home infrastructure upgrades), and also behavioral change. However, customers in different country may have their own unique traits, attitude and behavior (Jarrett, 2017).

Meanwhile, perceived benefit can be defined as the customer's subjective expectations of benefits obtained from the product consumption experience. It has a significant impact on customer's intention to purchase certain products (Kim et al., 2008). Porter & Donthu (2006) stated that customers will likely overcome difficulties of adopting new technology if there are substantive perceived benefits.

In addition, Featherman et al. (2021) found that vendor trustworthiness significantly decreases perceived risk while also increases perceived benefit of EV adoption, thus increases EV purchase intention in the U.S. Gefen (2002) defined vendor trustworthiness as belief about reputation, credibility and honesty of a particular vendor in conducting business. It's an especially important determinant of purchase intention when involving risky product purchase.

Belief of vendor expertise also becoming a purchase decision criterion (Lafferty et al., 2002) as customers prefer to engage with more knowledgeable and experienced vendors (Laura Yale & Gilly, 1995), especially when involving expensive and innovative-related purchases. Belief of vendor expertise refers to customer's belief about a vendor's knowledge, skill, competency, and experience. Customers proactively review vendor competency, practices, policies, and reputation to be used as decision criterias (Ohanian, 1990).

Another important factor for purchase decision of a radically-innovative product like EV is social influence. Social influence is a manifestation of subjective norm in the theory of reasoned action (M. Featherman et al., 2021). Bearden & Rose (1990) defined social influence as a process where customers consider their important referents' opinions for important purchases, and often make choices that others will agree with. Research of Gunawan & Huarng (2015) reported that social influence has a positive influence on purchase intention.

In addition to the factors influencing purchase intention mentioned above, perceived relevance is also believed to play a significant role. Perceived relevance is the degree to which customers perceive an ads related to them or their values / may contribute to the achievement of personal goals in some way (Zhu & Chang, 2016). Alalwan (2018) stated that customers are likely to purchase products presented in social media ads if they feel the ads are related to their personal preferences and interests. Pavlou & Stewart (2000) also demonstrated that personalization, as an effort to increase perceived relevance, has a positive impact on trust, purchase intention and satisfaction.

Based on the theoretical foundation, proposed conceptual framework, and literature above, the following hypothesis are proposed:

H1: Perceived risk influences the purchase intention of EVs negatively.

H2: Perceived benefit influences the purchase intention of EVs positively.

H3: Belief of vendor trustworthiness influences the purchase intention of EVs positively.
H4: Belief of vendor expertise influences the purchase intention of EVs positively.
H5: Social influence has a positive impact on the purchase intention of EVs.
H6: Perceived relevance of social media ads has a positive impact on the purchase intention of EVs.

METHOD

To achieve the objective of this study, by referring to the theory of reasoned action and risk-benefit model, the conceptual research model was developed (Figure 1). This study adopts the research model of Alalwan (2018) which used perceived relevance of social media ads to predict purchase intention as operational variables of social media ads engagement. This study also adopted the research model of Featherman et al. (2021) which used perceived benefit, perceived risk, vendor trustworthiness, vendor expertise and social influence as antecedents of EV purchase intention. Each construct was tested by using items adapted from previous studies and adjusted to electric cars context in Indonesian language. The measurement items for perceived relevance were adopted from Zeng et al. (2009), which were also used by Alalwan (2018). Perceived benefit was measured using items adopted from Forsythe et al. (2006), while perceived risk was measured using items from Featherman & Hajli (2016). Vendor expertise and trustworthiness measurement items were adapted from Featherman et al. (2010), Newell & Goldsmith (2001), and Ohanian (1990). All of the measurement items for perceived benefit, perceived risk, vendor trustworthiness, and vendor expertise were also used and modified from Featherman et al. (2021). While social influence's measurement items were adopted from Fishbein & Ajzen (1975), purchase intention's measurement items were adopted from both Featherman et al. (2021) and Alalwan (2018) which refer to Duffett (2015). A 7-point Likert scale was used to measure all of the main questionnaire items, from 1 (strongly disagree) to 7 (strongly agree).

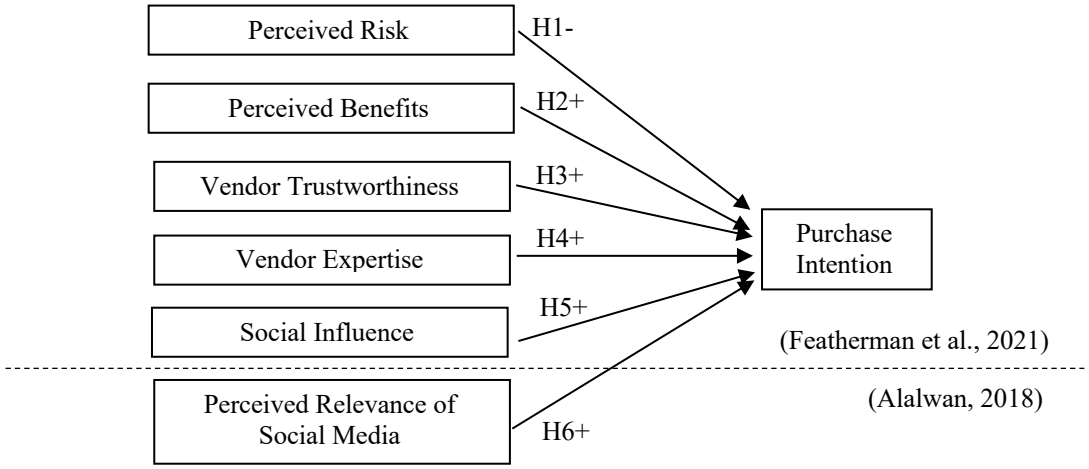


Figure 1. Research Model
Source: Featherman et al. (2021) & Alalwan (2018)

The data was collected through convenience sampling (non-probability sampling, from people who were available and willing to take part) by online questionnaire survey. Before

conducting the main survey, a pilot study with 53 respondents was conducted, and it reported that the language used was clear. At the main survey, the sample was screened to ensure that they know about electric car existence in Indonesia and own minimum an account in social media platforms. Preliminary analysis consists of Kaiser-Mayer-Olkin and Bartlett's Test were conducted to know sample adequacy for conducting factor analysis. Exploratory Factor Analysis (EFA) was then conducted to ensure the factor's convergence and adequate level of validity is achieved (factor loading > 0.5), also Cronbach's alpha test to ensure variable's reliability (Cronbach's alpha > 0.7). After ensuring the questionnaire items were valid and reliable, Multiple Regression Analysis was conducted to examine the impact of independent variables (perceived relevance of social media, perceived risk, perceived benefit, vendor trustworthiness, vendor expertise, and social influence) on dependent variables (EV purchase intention) at 0.05 significance level.

RESULT AND DISCUSSIONS

The respondents who participated in this study should know about electric vehicles existence in Indonesia and own minimum an account in social media platforms. Out of 315 respondents who filled out the questionnaire, 20 responses were categorized as invalid data. Therefore, 20 data were omitted (resulting 295 data) and then analyzed by using SPSS. The respondent's profile was summarized in Table 1.

Table 1. Respondents' Profile

Information		Percentage
Gender	Male	73%
	Female	27%
Age	18-34 years old	31.9%
	35-44 years old	40.7%
	45-59 years old	27.5%
Education	High school	15.6%
	Diploma	5.4%
	Bachelor	58%
	Master	18.6%
	Doctoral	2.4%
Monthly expenses (excluding primary & secondary needs)	< Rp 2.000.000	21.4%
	Rp 2.000.000 - Rp 5.999.999	38%
	Rp 6.000.000 - Rp 9.999.999	14.2%
	Rp 10.000.000 – Rp 19.999.999	13.9%
	≥ Rp 20.000.000	12.5%
Account ownership in social media platform	Facebook	80.3%
	Instagram	85.8%
	Twitter	43.4%
Preferred vendor for EV	Hyundai	36.9%
	Nissan	10.2%
	Tesla	36.6%
	Honda	37.6%
	Toyota	45.4%
	Wuling	10.8%
	BMW	15.3%
	Mitsubishi	13.9%
	Chevrolet	5.4%

Source: Data analysis result using SPSS, 2022

Table 2. Validity and Reliability Test Result

Variables		Instruments	Factor Loading
Perceived Risk (Cronbach's Alpha 0.752)	PR1	I may sometimes forget to charge my EV and then I would lose time having to find recharging stations that take at least an hour for a recharge.	0.634
	PR2	There will be hidden costs with owning an EV.	0.714
	PR3	Driving outside of my town with my EV would add stress to my life if I have difficulty recharging (anxiety).	0.733
	PR4	Because of the advanced GPS and computer system, my personal driving information may no longer be private.	0.726
	PR5	EV price is expensive even after tax rebates, so there is the risk of losing money if it does not last many years.	0.704
Perceived Benefit (Cronbach's Alpha 0.686)	PB1	A benefit from buying an EV would be the pride & satisfaction that I contribute to improve environment.	0.723
	PB2	I'd save my time by never again waiting for oil change.	0.635
	PB3	If I purchase an EV and was the driver, my friends and I could share a fun, innovative new lifestyle together.	0.670
Vendor Trustworthiness (Cronbach's Alpha 0.933)	TR1	The existing electric car vendor that I like is honest.	0.748
	TR2	The existing electric car vendor that I like is reliable.	0.780
	TR3	The existing electric car vendor that I like is sincere.	0.785
	TR4	The existing electric car vendor that I like is trustworthy.	0.740
Vendor Expertise (Cronbach's Alpha 0.952)	EXP1	The existing electric car vendor that I like is an expert.	0.795
	EXP2	The existing electric car vendor that I like is knowledgeable.	0.809
	EXP3	The existing electric car vendor that I like is innovative.	0.818
	EXP4	The existing electric car vendor that I like has genius engineering.	0.770
	EXP5	The existing electric car vendor that I like is qualified.	0.787
	EXP6	The existing electric car vendor that I like is skilled.	0.770
Social Influence (Cronbach's Alpha 0.763)	SI1	I would discuss an EV purchasing decision with my parents or elders to seek their advice and approval.	0.772
	SI2	I would discuss an EV purchasing decision with important friends to seek their advice and approval.	0.790
	SI3	People who are important to me, would think that I should choose an EV for my next automobile.	0.536
Perceived Relevance of social media (Cronbach's Alpha 0.967)	RLV1	Social media advertising of EV is relevant to me	0.749
	RLV2	Social media advertising of EV is important to me.	0.819
	RLV3	Social media advertising of EV means a lot to me.	0.832
	RLV4	Social media advertising of EV fits to my interest.	0.832
	RLV5	Social media advertising of EV fits to my preferences.	0.816
	RLV6	Overall, I think social media advertising of EV fits me.	0.790
Purchase Intention (Cronbach's Alpha 0.947)	PI1	I would be willing to buy an EV.	0.704
	PI2	I would recommend EVs to friends or relatives.	0.706
	PI3	I am already comfortable with EVs and have decided that owning an EV is in my future.	0.644
	PI4	I will buy EV that is advertised on social media.	0.799
	PI5	I desire to buy EV promoted in on social media ads.	0.761
	PI6	I'm likely to buy EV that is promoted on social media.	0.741
	PI7	I plan to purchase EV that is promoted on social media.	0.735

Source: Data analysis result using SPSS, 2022

Based on Table 1, the ratio of male and female respondents in this study was less balanced. However, based on Bannister et al. (2013) gender doesn't influence customer's attitude to the

purchase intention of products advertised in social media ads. In terms of age, the majority was from the age group of 35-44 years old (40.7%). Meanwhile, the respondents' educational level varies, from mostly bachelor degree (58%) and master degree (18.6%), which shows that the majority of respondents have a good educational level. As for expenses, the majority of respondents spend more than Rp 2.000.000/month for non-primary and non-secondary needs, which infers that the majority of respondents were from middle and upper economic class (according to the Indonesian Ministry of Finance (2015), the middle-class income society has income starting from Rp 2.600.000 – Rp 6.000.000). In terms of account ownership in social media platforms, most of the respondents have an Instagram account (85.8% of respondents) and Facebook (80.4% respondents), but only 43.4% of respondents have an account on Twitter. Lastly, the order of preferred electric car vendors from the highest to lowest is Toyota (45.4%), Honda (37.6%), Hyundai (36.9%), Tesla (36.6%), BMW (15.3%), Mitsubishi (13.9%), Wuling (10.8%), Nissan (10.2%), and Chevrolet (5.4%).

The Kaiser-Mayer-Olkin measure was found to be 0.944 (above the accepted value which is 0.5), indicating there was sufficient data for factor analysis. Barlett's test of sphericity was also conducted to check whether there was redundancy between variables, by testing the null hypothesis that the original correlation matrix is an identity matrix. The significance of Barlett's test was found $p < 0.001$ (significant, below 0.05), which indicated that the correlation matrix is significantly different from an identity matrix. Then, factor analysis was conducted to ensure factor's convergence and validity (factor loading > 0.5), also variable's reliability (Cronbach's alpha > 0.7). Factor analysis results are shown in Table 2.

Table 3. ANOVA Result

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	226.408	6	37.735	84.496	.000
	Residual	128.616	288	.447		
	Total	355.024	294			

a. Dependent Variable: Purchase_Intention

b. Predictors: (Constant), PRelevance, PRisk, Social_Influence, PBenefit, VExpertise, VTrustworthiness

Source: Data analysis result using SPSS, 2022

The model found from multiple regression analysis was statistically significant with p <0.001 (Table 3). Based on Adjusted R^2, variables of perceived risk, perceived benefit, vendor trustworthiness, vendor expertise, social influence and perceived relevance were able to explain 63% of the variance of EV purchase intention in Indonesia (Table 4). Autocorrelation was also tested using Durbin-Watson and the value found was 1.970. As the Durbin-Watson value was almost 2, thus there was no autocorrelation in the model.

Table 4. Summary of the Regression Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.799	0.638	0.630	0.66827	1.970

a. Predictors: (Constant), PRelevance, PRisk, Social_Influence, PBenefit, VExpertise, VTrustworthiness

b. Dependent Variable: Purchase_Intention

Source: Data analysis result using SPSS, 2022

Table 5. Multiple Regression Analysis Result

Model		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		Beta			Tolerance	VIF
1	(Constant)		2.564	0.011		
	PRisk	-0.096	-2.659	0.008	0.961	1.040
	PBenefit	0.209	4.963	0.000	0.708	1.412
	VTrustworthiness	0.028	0.526	0.599	0.459	2.179
	VExpertise	0.143	2.592	0.010	0.412	2.427
	Social_Influence	0.192	4.356	0.000	0.644	1.552
	PRelevance of soc media	0.428	8.434	0.000	0.487	2.051

Source: Data analysis result using SPSS, 2022

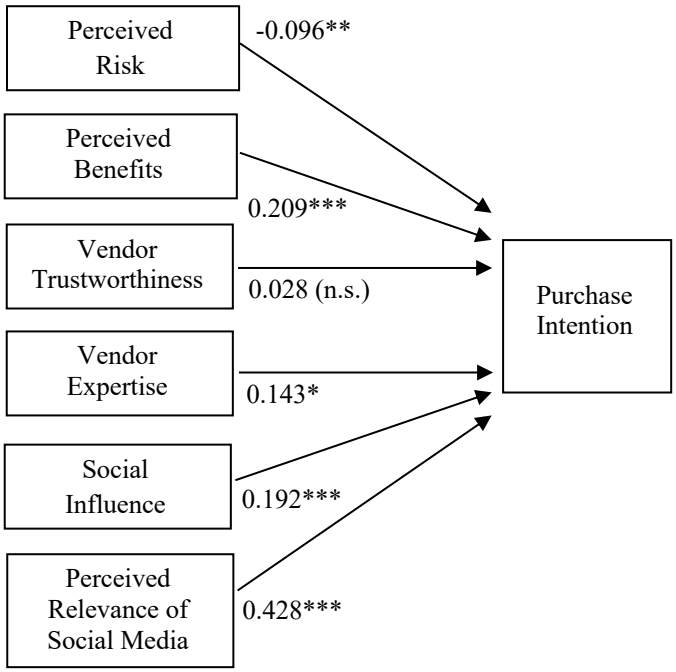
Multicollinearity was then tested using tolerance value and variance inflation factor (VIF). No multicollinearity will be indicated by a tolerance value of 0.1 or higher (Arrenberg, 2020), and VIF less than 3. Based on the result (Table 5), it was found that no multicollinearity problem exists in this study.

This study was conducted with the intention of examining social media ads engagement (which is measured by perceived relevance) that along with other factors which influence customer beliefs formation when facing new technologies (perceived risk, perceived benefit, vendor trustworthiness, vendor expertise, social influence) could shape the customer's purchase intention. Based on the theory of reasoned action, it's essential to understand factors that influence purchase intention to get people to actually purchase certain products (Fishbein & Ajzen, 1975), which in this study refers to factors that represent or affect the person's attitude and subjective norm of EV purchase. Social media platform as the new places where people, organizations, and governments interact with each other socially, politically, educationally and commercially, is believed to be useful for introducing technologically-innovative new products like electric car, due to its role in leading the exchange of thoughts, information, products and services (Alalwan, 2018). However, as promoting in social media ads requires a high cost and time, there's a concern whether social media ads really attract customers. The hypothesis test result of this study is shown in Table 6 and Figure 2.

Table 6. Hypothesis Test Result

Hypothesis	Parameter Estimates	p-values	Status
H1: Perceived risk influences the purchase intention of EVs negatively.	-0.096	0.008	Accept
H2: Perceived benefit influences the purchase intention of EVs positively.	0.209	0.000	Accept
H3: Belief of vendor trustworthiness influences the purchase intention of EVs positively	0.028	0.599	Reject
H4: Belief of vendor expertise influences the purchase intention of EVs positively.	0.143	0.010	Accept
H5: Social influence has a positive impact on the purchase intention of EVs.	0.192	0.000	Accept
H6: Perceived relevance of social media ads has a positive impact on the purchase intention of EVs.	0.428	0.000	Accept

Source: Data analysis result using SPSS, 2022



Notes: n.s.: not significant; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Figure 2. Research Finding

Source: Data analysis result using SPSS, 2022

The results show support to the theory of reasoned action. Perceived risk, perceived benefit, belief of vendor expertise and perceived relevance of social media ads as factors influencing customer's belief and their subsequent attitude towards EV purchase is found to be significantly influencing EV purchase intention. Social influence which is a manifestation of subjective norm in the theory of reasoned action also show a significant impact to EV purchase intention. Only the belief of vendor trustworthiness which doesn't influence EV purchase intention significantly because it doesn't impact the purchase intention directly.

Perceived risk

The perceived risks associated with EV adoption measured in this study was basically related to functional risk (difficulty in finding charging station), financial risk (hidden cost and depreciation), physical risk (security of personal information) and psychological risk (anxiety). Based on the regression result, customer's purchase intention of electric car in Indonesia can be predicted by the perceived risk of EV adoption, as the p-value was found significant (p = 0.008) at 0.05 level, with the effect of perceived risk demonstrating negative influence to purchase intention (β = -0.096). It means that as perceived risk of adopting electric cars increases, customer's purchase intention towards electric cars decreases. Thus, H1 is accepted.

Perceived risks exist as there are uncertainties of the final outcome and consequences, which are likely to be undesirable. It relates to potential losses in various dimensions, such as performance, physical, financial, psychological, social and time risk (Dowling, 1986). The perceived risks of adapting a new technology leads to negative attitudes toward it, which causes individuals to be reluctant to adapt it (Ram & Sheth, 1989). These perceived risks in turn delay purchase decisions (Mitra et al., 1999), thus resulting in negative significant influence to EV purchase intention.

In order to be successful in accelerating EV adoption, companies in the EV industry in Indonesia should try to minimize customer's perceived risk by winning customer's confidence. Bhukya & Singh (2015) suggested that companies can focus on promoting the product performance to minimize functional risk, positioning product according to price-quality association to minimize perceived financial risk, educating customer of the product quality to minimize physical risk, and adopting better customer relationship management while providing better service to minimize psychological risks. Thus, in terms of marketing efforts, companies in the EV industry in Indonesia should promote more on the performance of the electric cars, such as possible mileage traveled in different traffic conditions to minimize the perceived functional risk. They should also align their market positioning better according to price-quality association while also considering the purchasing power of their targeted market to minimize perceived financial risk. Meanwhile, to minimize perceived physical risk, companies can educate customers of the product quality such as the security system they used in the product (to ensure personal information security). Companies can also convince customers by promoting better service that they provide, also educating customers of the government's support towards EV products (government plan related to national EV adoption target and benefit offered for adopting EV) to minimize psychological risks. In addition, Featherman et al. (2021) also found that customer's belief of vendor trustworthiness and expertise reduce customer's perceived risk, thus brand image should also be enhanced to reflect company's trustworthiness and expertise, by communicating company's skill and expertise further. Lastly, aside from marketing efforts, more importantly, companies also need to innovate EV products further to address customer's concern operationally, thus further minimize customer's functional, financial, physical and psychological risks.

Perceived benefit

Customer's purchase intention of electric cars in Indonesia can also be predicted by the perceived benefit of EV adoption, as the p-value was found significant ($p = 0.000$) at 0.05 level. Perceived benefit was found to have a positive impact on the purchase intention ($\beta = 0.209$). It means that as perceived benefit increases, customer's purchase intentions towards electric cars also increase. Therefore, H2 is accepted. This result is in accordance with the research of Schuitema et al. (2013) which demonstrated that customers' perceived instrumental (functionality of the new technology), hedonic (emotional experience such as pleasure) and symbolic (sense of self / social identity from owning a new technology) attributes have substantive impact on the intention to purchase EV products. As such, companies in the EV industry in Indonesia are encouraged to communicate more about EV benefits through their ads, such as the benefits associated with the product, benefits offered by the company, and also benefits offered by the government, covering the 3 attributes (instrumental, hedonic and symbolic). The benefits stated in the ads may also be customized according to the targeted market to enhance audience's engagement and generate purchase intention.

Vendor trustworthiness

Belief of vendor trustworthiness' influence to EV purchase intention was found to be positive but insignificant ($\beta = 0.028$, $p = 0.599$) at 0.05, thus it can't be used to predict EV purchase intention in Indonesia. Therefore, H3 is rejected. This result is different from the research result of Featherman et al. (2021) which demonstrated a positive significant influence of vendor trustworthiness towards EV purchase intention in the U.S, because reliable vendors were believed as being less risky, and customers are more inclined to purchase risky products from trustworthy vendors. A possible reason for the differences in trustworthiness significancy

is that the vendors used in this study are relatively new in the EVs operaration. Even though the vendors have operated for years in conventional vehicle, Indonesian consumers still do not know their performance in EVs.

Customers already feel that the vendors are reliable in conventional cars, but not in EVs as EVs are considered new in Indonesia. In addition, many infrastructures such as charging stations or EV repair shops are still limited provided by the vendors. This makes the customers have limited trust for EV. In addition, Lien et al. (2015) found that trustworthiness doesn't impact purchase intention directly. Instead, trustworthiness has a positive indirect impact on purchase intention, by being a mediator which enhances customers' perceived value or benefit. As such, vendors in the EV industry in Indonesia are encouraged to improve customer's belief of vendor trustworthiness.

Vendor expertise

Based on the regression result, the customer's purchase intention of electric cars in Indonesia can be predicted by the customer's belief of the vendor's expertise, as the p-value was significant ($p = 0.010$) at 0.05 level. Customer's belief of the vendor expertise was found to influence customer's purchase intention in a positive way ($\beta = 0.143$). It means that the more customers believe in the EV vendor expertise, the more likely they intend to purchase the EV product. Therefore, H4 is accepted. This result is in accordance with the research result of Aaker et al. (2012) which demonstrated that consumers desire products from brands they perceive as highly competent brands. The belief of high competence in a particular brand enhances consumer confidence / positive evaluation of the brand's product quality and performance, hence advancing brand trust and intention to purchase the product (Xue et al., 2020). As such, companies in the EV industry in Indonesia are suggested to convince customers by increasing brand image through communication about their skill and expertise especially in EV production.

Social influence

The positive effect of social influence to EV purchase intention in Indonesia was found to be significant ($\beta = 0.192$, $p = 0.000$ at 0.05). Therefore, H5 is accepted. It means that Indonesian customers ask for opinion and approval from references / important people for EV purchase decisions. According to AFS (2022), Indonesian people tend to ask opinion from parents or other important persons as a form of respects as they're considered to have more experiences in life, not as a form of dependency. The Cultural Atlas (2022) also stated that conservative conduct is the norm in Indonesian people as they don't want to risk losing face in their society by doing something inappropriate, so they usually act with restraint to protect their self-worth and peer perception. This result is in line with the research result of Featherman et al. (2021) which demonstrated that social influence has a positive significant impact on EV purchase intention in the U.S, especially on younger customers who were influenced by parents, elders and important friends. As such, companies in the EV industry in Indonesia are encouraged to attract not only the potential EV user customer but also attract those people who being their 'influencer' and 'decision maker' in their EV purchase decision making.

Perceived relevance

Customer's perceived relevance to social media ads of EV products was found to significantly affect EV purchase intention in Indonesia, as the p-value was found significant ($p = 0.000$) at 0.05 level. Perceived relevance positively influences the purchase intention ($\beta = 0.428$), and it has the largest value of coefficient in this model, which indicates that it is the most influencing factor affecting EV purchase intention. Therefore, H7 is accepted. This result

implies that customers tend to purchase EV products advertised in social media ads the more they feel the social media ads related to their own personal goals, values, preferences, and interest (Zhu & Chang, 2016). This result is also in accordance with the result of Alalwan (2018) that demonstrated a positive significant influence of perceived relevance to customer's purchase intention in Jordan. Hence, companies in the EV industry in Indonesia need to try to engage the potential customers by enhancing relevance in consumers' minds, as suggested by Watkins et al. (1991). Pavlou & Stewart (2000) suggested that enhancing relevance can be done by personalization of ads. Zhu & Chang (2016) further explained that companies should customize their ads to their targeted customer's lifestyle, needs, characteristics and interests to be more capable in delivering their message.

CONCLUSION

This research examined the effect of social media ads engagement on electric car purchase intention in Indonesia, along with other factors that influence customer beliefs formation when facing new technologies (perceived risks, perceived benefits, vendor trustworthiness, vendor expertise, social influence). By using multiple regression analysis, it was found that customer's perceived relevance towards social media ads has the greatest effect to EV purchase intention in Indonesia, followed by perceived benefit, social influence and beliefs of vendor expertise, which also significantly influence purchase intention in a positive way. Perceived risk also significantly influences EV purchase intention. Meanwhile, vendor trustworthiness doesn't significantly influence EV purchase intention.

As such, EV practitioners in Indonesia are very encouraged to enhance EV relevance in consumers' minds through ads personalization according to target market's characteristics, preferences and interest. Companies in the EV industry are also encouraged to communicate more about EV benefits through their ads (benefits associated with the product, benefits offered by the company, and also benefits offered by the government), and try to attract not only the potential EV user customer but also attract their 'influencer' and 'decision maker' in purchasing EV products. Companies are also encouraged to increase their brand image through the communication of their skill and expertise in terms of EV production. Customer's belief of vendor expertise will reduce the perceived risks, however, companies are suggested to further reduce it through several marketing and operational efforts.

Although this study has provided a new insight of EV purchase intention driving factors in Indonesia related to EV social media ads, this study had some limitations. Firstly, this study didn't examine the effect of demography (e.g: gender, age, education, income), customer's personality traits (e.g: generational personality differences) and customer's characteristics in technology adoption (innovator, early adopter, early majority, late majority, laggard), which may also impact customers' formation of attitude and behavioral intention towards EV purchase as a green and radically-innovative product. Therefore, future research can be done by addressing these factors in the research model. This study also only examined the purchase intention of electric car products in general. As different types of electric vehicle products (e.g: electric motorcycle) may have different perceived benefits and risks, this study result couldn't be generalized into other electric vehicle products, thus future research is suggested to apply this model to other types of electric vehicle. Future research can also examine the purchase intention of various types of electric cars (Battery Electric Vehicle, Hybrid Electric Vehicle, Plug-in Hybrid Electric vehicle, and Fuel Cell Electric Vehicle). This study also only applied a

quantitative approach in examining the driving factors of EV purchase intention in Indonesia. Further research with a qualitative approach can be done to discover more about factors that drive customer's perceived relevance on EV ads, customer's expectations of EV product's value proposition, and Indonesian customer decision making process of purchasing risky products, to be able to better align company's marketing strategy in increasing customer's purchase intention. In addition, this study only used regression method to examine the relationships between the variables in such a complex model. Future research is suggested to use a more robust analytical methods such as covariance based structural models. Lastly, this study used convenience sampling for sample selection which may have limitation in the representativeness of the population. As such, future research is suggested to use sampling techniques that can better improve the representativeness of the population.

REFERENCES

Aaker, J. L., Garbinsky, E. N., & Vohs, K. D. (2012). Cultivating admiration in brands: Warmth, competence, and landing in the "golden quadrant." *Journal of Consumer Psychology*, *22*(2), 191–194. https://doi.org/10.1016/j.jcps.2011.11.012

Abzari, M., Ghassemi, R. A., & Vosta, L. N. (2014). Analysing the effect of social media on brand attitude and purchase intention: the case of Iran Khodro Company. *Procedia - Social and Behavioral Sciences*, *143*, 822–826. https://doi.org/10.1016/j.sbspro.2014.07.483

AFS. (2022). *Exploring Indonesian culture*. https://www.afsusa.org/countries/indonesia/#afs-nav-food

AHK Indonesien. (2021, December 1). *Indonesian electric vehicles industry development gains momentum*. https://indonesien.ahk.de/en/infocenter/news/news-details/indonesian-electric-vehicles-industry-development-gains-momentum

Alalwan, A. A. (2018). Investigating the impact of social media advertising features on customer purchase intention. *International Journal of Information Management*, *42*, 65–77. https://doi.org/10.1016/j.ijinfomgt.2018.06.001

Bannister, A., Kiefer, J., & Nellums, J. (2013). College students' perceptions of and behaviors regarding Facebook© advertising: an exploratory study. *The Catalyst*, *3*(1). https://doi.org/10.18785/cat.0301.02

Bearden, W. O., & Rose, R. L. (1990). Attention to social comparison information: an individual difference factor affecting consumer conformity. *Journal of Consumer Research*, *16*(4), 461–471. http://jcr.wisc.edu/

Bhukya, R., & Singh, S. (2015). The effect of perceived risk dimensions on purchase intention. *American Journal of Business*, *30*(4), 218–230. https://doi.org/10.1108/ajb-10-2014-0055

Bhutto, M. H., Tariq, B., Azhar, S., Ahmed, K., Khuwaja, F. M., & Han, H. (2022). Predicting consumer purchase intention toward hybrid vehicles: testing the moderating role of price sensitivity. *European Business Review*, *34*(1), 62–84. https://doi.org/10.1108/EBR-10-2019-0274

Bruhn, C. M. (2007). Enhancing consumer acceptance of new processing technologies. *Innovative Food Science and Emerging Technologies*, *8*(4), 555–558. https://doi.org/10.1016/j.ifset.2007.04.006

Bughin, J., Doogan, J., & Vetvik, O. J. (2010, April 1). *A new way to measure word-of-mouth marketing*. https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/a-new-way-to-measure-word-of-mouth-marketing#/

Dowling, G. R. (1986). Perceived risk: the concept and its measurement. *Psychology & Marketing*, *3*, 193–210.

Duffett, R. G. (2015). Facebook advertising's influence on intention-to-purchase and purchase amongst millennials. *Internet Research*, *25*(4), 498–526. https://doi.org/10.1108/IntR-01-2014-0020

Featherman, M., Jia, S. (Jasper), Califf, C. B., & Hajli, N. (2021). The impact of new technologies on consumers beliefs: Reducing the perceived risks of electric vehicle adoption. *Technological Forecasting and Social Change*, *169*. https://doi.org/10.1016/j.techfore.2021.120847

Featherman, M. S., & Hajli, N. (2016). Self-service technologies and e-services risks in social commerce era. *Journal of Business Ethics*, *139*(2), 251–269. https://doi.org/10.1007/s10551-015-2614-4

Featherman, M. S., Miyazaki, A. D., & Sprott, D. E. (2010). Reducing online privacy risk to facilitate e-service adoption: The influence of perceived ease of use and corporate credibility. *Journal of Services Marketing*, *24*(3), 219–229. https://doi.org/10.1108/08876041011040622

Febransyah, A. (2021). Predicting purchase intention towards battery electric vehicles: A case of indonesian market. *World Electric Vehicle Journal*, *12*(4). https://doi.org/10.3390/wevj12040240

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior : an introduction to theory and research*. Addison-Wesley. https://people.umass.edu/aizen/f&a1975.html

Forsythe, S., Liu, C., Shannon, D., & Gardner, L. C. (2006). Development of a scale to measure the perceived benefits and risks of online shopping. *Journal of Interactive Marketing*, *20*(2), 55–75. https://doi.org/10.1002/dir.20061

Gefen, D. (2002). Reflections on the dimensions of trust and trustworthiness among online consumers. *Database for Advances in Information Systems*, *33*(3), 38–53. https://doi.org/10.1145/569905.569910

Gunawan, D. D., & Huarng, K.-H. (2015). Viral effects of social network and media on consumers' purchase intention. *Journal of Business Research*, *68*(11), 2237–2241. https://doi.org/10.1016/j.jbusres.2015.06.004

Gunawan, H. (2022, April 21). *Kemenhub: jumlah penggunaan kendaraan listrik di Indonesia sudah mencapai 17 ribu unit*. https://www.tribunnews.com/bisnis/2022/04/21/kemenhub-jumlah-penggunaan-kendaraan-listrik-di-indonesia-sudah-mencapai-17-ribu-unit

Indonesian Ministry of Finance. (2015, April 29). *Penghasilan kelas menengah naik = potensi pajak?* https://bppk.kemenkeu.go.id/pusdiklat-pajak/berita/penghasilan-kelas-menengah-naik-potensi-pajak-922473

Jarrett, C. (2017, April 13). *Different nationalities really have different personalities*. https://www.bbc.com/future/article/20170413-different-nationalities-really-have-different-personalities

Kim, D. J., Ferrin, D. L., & Rao, H. R. (2008). A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk, and their antecedents. *Decision Support Systems*, *44*(2), 544–564. https://doi.org/10.1016/j.dss.2007.07.001

Lafferty, B. A., Goldsmith, R. E., & Newell, S. J. (2002). The dual credibility model: the influence of corporate and endorser credibility on attitudes and purchase intentions. *Journal of Marketing Theory and Practice*, *10*(3), 1–12.

Lai, P. (2017). The literature review of technology adoption models and theories for the novelty technology. *Journal of Information Systems and Technology Management*, *14*(1), 21–38. https://doi.org/10.4301/S1807-17752017000100002

Laura Yale, E. J., & Gilly, M. C. (1995). Dyadic perceptions information search in personal source. *Journal of Business Research*, *32*, 225–237. https://doi.org/10.1016/0148-2963(94)00048-J

Lien, C. H., Wen, M. J., Huang, L. C., & Wu, K. L. (2015). Online hotel booking: The effects of brand image, price, trust and value on purchase intentions. *Asia Pacific Management Review*, *20*(4), 210–218. https://doi.org/10.1016/j.apmrv.2015.03.005

Madden, T. J., Ellen, P. S., Ajzen, I. (1992). A comparison of the theory of planned behavior and the theory of reasoned action. *Personality and Social Psychology Bulletin*, *18*(1):3-9. https://doi.org/10.1177/0146167292181001

Miranda, J. L., & Delgado, C. J. M. (2020). Determinants of electric car purchase intention in Portugal. *Developments in Corporate Governance and Responsibility*, *15*, 161–172. https://doi.org/10.1108/S2043-052320200000015009

Mitra, K., Reiss, M. C., & Capella, L. M. (1999). An examination of perceived risk, information search and behavioral intentions in search, experience and credence services. *The Journal of Services Marketing*, *13*(3), 208–228. https://doi.org/10.1108/08876049910273763

Newell, S. J., & Goldsmith, R. E. (2001). The development of a scale to measure perceived corporate credibility. *Journal of Business Research*, *52*, 235–247.

Nguyen, H. T., & Chaudhuri, M. (2018). Making new products go viral and succeed. *International Journal of Research in Marketing*, *36*(1), 39–62. https://doi.org/10.1016/j.ijresmar.2018.09.007

Ohanian, R. (1990). Construction and validation of a scale to measure celebrity endorsers' perceived expertise, trustworthiness, and attractiveness. *Journal of Advertising*, *19*(3), 39–52. https://doi.org/10.1080/00913367.1990.10673191

Pavlou, P. A., & Stewart, D. W. (2000). Measuring the effects and effectiveness of interactive advertising: a research agenda. *Journal of Interactive Advertising*, *1*(1), 62–78. http://ssrn.com/abstract=2380734https://ssrn.com/abstract=2380734

Porter, C. E., & Donthu, N. (2006). Using the technology acceptance model to explain how attitudes determine internet usage: the role of perceived access barriers and demographics. *Journal of Business Research*, *59*(9), 999–1007. https://doi.org/10.1016/j.jbusres.2006.06.003

Ram, S., & Sheth, J. N. (1989). Consumer resistance to innovations: the marketing problem and its solutions. *The Journal of Consumer Marketing*, *6*(2), 5–14.

Schuitema, G., Anable, J., Skippon, S., & Kinnear, N. (2013). The role of instrumental, hedonic and symbolic attributes in the intention to adopt electric vehicles. *Transportation Research Part A: Policy and Practice*, *48*, 39–49. https://doi.org/10.1016/j.tra.2012.10.004

Shofa, J. N. (2022, March 17). *Roadblocks to Indonesia's EV adoption*. https://jakartaglobe.id/business/roadblocks-to-indonesias-ev-adoption

Sweeney, J. C., Soutar, G. N., Cowan, E., & Johnson, L. W. (1999). The role of perceived risk in the quality-value relationship: a study in a retail environment. *Journal of Retailing*, *75*(1), 77–105.

Taherdoost, H. (2018). A review of technology acceptance and adoption models and theories. *Procedia Manufacturing, 22,* 960–967. https://doi.org/10.1016/j.promfg.2018.03.137

The Cultural Atlas. (2022). *Indonesian Culture*. https://culturalatlas.sbs.com.au/indonesian-culture/indonesian-culture-core-concepts

Utami, M. W. Dela, Yuniaristanto, Y., & Sutopo, W. (2020). Adoption intention model of electric vehicle in Indonesia. *Jurnal Optimasi Sistem Industri*, *19*(1), 70–81. https://doi.org/10.25077/josi.v19.n1.p70-81.2020

Watkins, C. E., Tipton, R. M., Maims, M., & Hunton-Shoup, J. (1991). Role relevance and role engagement in contemporary school psychology. *Professional Psychology: Research and Practice*, *22*(4), 328–332.

Xue, J., Liang, X., Xie, T., & Wang, H. (2020). See now, act now: how to interact with customers to enhance social commerce engagement? *Information and Management*, *57*(6). https://doi.org/10.1016/j.im.2020.103324

Zeng, F., Huang, L., & Dou, W. (2009). Social factors in user perceptions and responses to advertising in online social networking communities. *Journal of Interactive Advertising*, *10*(1), 1–13. https://doi.org/10.1080/15252019.2009.10722159

Zhu, Y. Q., & Chang, J. H. (2016). The key role of relevance in personalized advertisement: examining its impact on perceptions of privacy invasion, self-awareness, and continuous use intentions. *Computers in Human Behavior*, *65*, 442–447. https://doi.org/10.1016/j.chb.2016.08.048