University of Tehran Press

Interdisciplinary Journal of Management Studies (IJMS)
Home Page: https://ijms.ut.ac.ir

Online ISSN: 2981-0795

The Role of Technological Self-Efficacy in Moderating the Effect of Ease of Use on Value Co-Destruction

Widyastuti Widyastuti[1*] | Yessy Artanti[2] | Nindria Untarini[3] | Monika Tiarawati[4] | Muhammad Rizky Ramadhan[5]

1. Corresponding Author, Department of Management, Faculty of Economics and Business, University Negeri Surabaya, Surabaya, Indonesia. E-mail: widyastuti@unesa.ac.id
2. Department of Management, Faculty of Economics and Business, University Negeri Surabaya, Surabaya, Indonesia. E-mail: yessyartanti@unesa.ac.id
3. Department of Management, Faculty of Economics and Business, University Negeri Surabaya, Surabaya, Indonesia. E-mail: nindriauntarini@unesa.ac.id
4. Department of Management, Faculty of Economics and Business, University Negeri Surabaya, Surabaya, Indonesia. E-mail: monikatiarawati@unesa.ac.id
5. Department of Management, Faculty of Economics and Business, University Negeri Surabaya, Surabaya, Indonesia. E-mail: muhammadramadhan@unesa.ac.id

ARTICLE INFO

Article type:
Research Article

Article History:
Received 18 November 2024
Revised 10 March 2025
Accepted 16 March 2025
Published Online 01 June 2025

Keywords:
Educational Managers' Competencies,
Technology,
Self-Efficacy,
Failure,
Misuse,
Interactions.

ABSTRACT

Misuse of technology contributes to value co-destruction, particularly in interactions between consumers and companies. Therefore, this study aims to examine the role of technological self-efficacy as a moderating variable in the relationship between ease of use and value co-destruction. To achieve the aim, analysis was carried out to examine how value co-destruction influenced word of mouth. Data was collected through a questionnaire distributed to 210 respondents, with statements measured on a 5-point Likert scale. Following this, data was analyzed using Structural Equation Modeling (SEM), assisted by AMOS software. The results indicated that technological self-efficacy moderated a negative relationship between ease of use and value co-destruction. Furthermore, technological self-efficacy was found to have an effect on value co-destruction. Given these results, the analysis concluded that ease of use did not influence value co-destruction.

Cite this article: Widyastuti, W.; Artanti, Y.; Untarini, N.; Tiarawati, M. & Ramadhan, M. (2025). The Role of Technological Self-Efficacy in Moderating the Effect of Ease of Use on Value Co-Destruction. *Interdisciplinary Journal of Management Studies* (*IJMS*), 18 (3), 583-597. http//doi.org/10.22059/ijms.2025.385577.677168

 Publisher: University of Tehran Press.
DOI: http//doi.org/10.22059/ijms.2025.385577.677168

1. Introduction

The number of internet consumers is growing each year, driven by rapid advancements in technology. According to a survey by *We Are Social,* Indonesia had 212.9 million internet users in 2023, indicating a 4% increase from the previous year. At the same time, e-commerce business in the country is projected to reach IDR 1,026.1 trillion by 2024(Riyanto & Pertiwi, 2024). To remain competitive, many companies are leveraging technology into their marketing strategies by offering consumers a more unique shopping experience. A typical example of this innovation is the development of applications that allow consumers to try products without visiting a physical store. This technology, known as virtual try-on (VTO), enables consumers to visualize products before making a purchase.

VTO technology allows consumers to interactively view product images and information in digital form, effortlessly incorporating the data into physical environment in real-time. This innovation enables consumers to try on several products virtually through web-based platform. By using the front camera of a laptop or smartphone, consumers can view their look on the screen and apply the desired product. For example, when trying on lipstick, the selected shade is precisely overlaid onto consumers' lips, forming a realistic effect that mimics an in-store experience.

Several companies in Indonesia, such as Maybelline, Dulux, and Optik Melawai, have incorporated VTO technology into marketing strategies. Despite the fact that the innovation has been widely adopted, not all consumers find it easy to use. Successful adoption depends on the ability of consumers to navigate tools, making technological literacy and desire to learn essential to consider.

A study by Kumar and Lim (2008) explained that consumers with technological expertise could easily adopt innovations effortlessly. Additionally, according to Theory Acceptance Model (TAM), developed by Davis (1989), consumers evaluate both the perceived benefits and ease of use before adopting a new technology.

Technological self-efficacy refers to the ability of consumers to use technology, which plays a crucial role in the process of value co-creation. Based on a study by Prahalad and Ramaswamy (2004), value co-creation improves shared value between companies and consumers, enabling consumers to actively shape service experiences according to preferences. Following this discussion, consumers with high technological self-efficacy are more expected to adopt co-creation-based technologies, allowing consumers to engage more effectively in co-creation process and improve the total experience (Kumar & Lim, 2008).

Not all technology adoption occurs smoothly, and when consumers struggle to use technology, it can lead to value co-destruction. According to Prior and Marcos-Cuevas (2016), value co-destruction is more common than value co-creation, occurring when interaction failures cause negative outcomes. This condition can occur when individuals included in the process lack resources such as skill or knowledge, preventing consumers from effectively engaging with the technology (Smith, 2013).

Several studies have identified various factors contributing to value co-destruction, including poor relationships with employees and difficulty in accessing information (Galdolage, 2021), delivery problems (Hauke-Lopes et al., 2022), fraud, and lack of soft skills (Zhang & Torres, 2020). This study aims to position technological self-efficacy as a crucial soft skill that can moderate the negative relationship between ease of use and value co-destruction.

VTO is still a relatively new technology in some developing countries (Tandon, 2023) including Indonesia. Most studies on the adoption of new technologies and value co-destruction have been conducted in developed countries. However, the results of these studies may not fully apply to developing countries due to differences in the technological capabilities of the two types of countries.

Studies on value co-destruction have been conducted across several fields including self-service technology (Galdolage, 2021), tourism (Xie et al., 2023), and online communities (Lv et al., 2021). Even though studies on this topic are increasing, most have relied on qualitative methods rather than quantitative ones (Guan et al., 2020). Existing studies have primarily employed methodologies such as Systematic Literature Review (SLR) (Lumivalo et al., 2023; Plé, 2017), netnography (Sthapit & Björk, 2019), case study (Frau et al., 2018), or content analysis (Xie et al., 2023).

This study uses quantitative method to examine the role of technological self-efficacy as a moderating variable in the relationship between ease of use and value co-destruction. Concerning the understanding relating to this topic, few studies have explored technological self-efficacy as a moderator in digital marketing, leaving its impact on value co-destruction in VTO largely unexplored.

The results of this study are expected to serve as a theoretical reference for future exploration, contributing to a deeper understanding of the relationship between technological self-efficacy and value co-destruction in the context of developing digital technologies.

To address the issues, this study is structured as follows: The literature review section explores relevant studies on the major variables, namely technological self-efficacy, ease of use, value co-destruction, and word-of-mouth promotion. This section also presents hypothesis of the study, reviewing the expected relationships between these variables. Subsequently, the methodology section details the method, including data collection and analysis procedures. The results section then presents hypothesis testing outcomes and model feasibility. In the discussion section, the analysis discusses the implications of the results, interpreting their significance. Finally, the conclusion reviews the major key findings, discusses practical applications, and presents limitations of this study.

2. Literature Review

2-1. Virtual Try-On (VTO)

Several industries, including fashion, cosmetics, and accessories have adopted VTO. In fashion industry, this technology allows consumers to try on clothing and accessories virtually, addressing the challenge of limited fitting room availability (Baytar et al., 2020). Similarly, in cosmetics industry, VTO enables consumers to experiment with various makeup products and shades online, helping consumers find the perfect match without the need for physical samples (Vongurai, 2021).

VTO offers consumers a fun and interactive experience (Jiang et al., 2022), as it allows consumers to experiment with several products in an engaging way, which can increase satisfaction (Alimamy, 2018). This enjoyable interaction urges consumers to explore different options, making the shopping more immersive and personalized.

The discussion indicates that the technology benefits both consumers and companies. For consumers, VTO offers a more convenient and enjoyable shopping experience, helping to reduce uncertainty when making online purchases (Alimamy, 2018). Relating this discussion, the technology also reduces return rates for companies by allowing consumers to make more informed choices while providing valuable insights into preferences and behavior of consumers.

2-2. Value Co-Destruction

Service-Dominant Logic (SDL) has been introduced by Vargo and Lusch (2004) as a shift from Good-Dominant Logic (GDL). This shift occurred due to perceived limitations in GDL, which views economic activity primarily as the production and distribution of goods for purchase. Under GDL, goods need to hold fundamental value during manufacturing and distribution while offering greater utility to consumers compared to competing products. Consequently, SDL views goods as mere intermediaries in the value exchange. According to this perspective, consumers do not simply purchase products; rather, they pursue the benefits, knowledge, skills, and services embedded in goods.

SDL adopts the concept of value-in-use, where value is determined by how consumers engage with and experience a product or service. Different from traditional models that view value as embedded in a product at the time of sale, SDL stresses the active role of consumers in shaping value through usage and interactions (Lusch & Vargo, 2006). In line with the discussion, value co-creation is central to this perspective, signifying the partnership between companies and consumers to generate shared value. This process includes continuous interaction where both parties contribute knowledge, resources, and experiences to improve products and services. According to Prahalad and Ramaswamy (2004), co-creation allows consumers to modify service experience to individual preferences, increasing satisfaction and driving innovation in product development.

Similar to value co-creation, value co-destruction indicates the interaction between actors or service systems, such as companies and consumers. However, different from concept of value co-creation, which generates shared rate, co-destruction occurs when these interactions do not go as expected, leading to a decrease in the well-being of no less than one party (Plé & Cáceres, 2010). In the context of this discussion, the value that should have been created through partnership fails to materialize, leading to negative impacts, such as loss of resources (e.g., money) and feelings of frustration.

Value co-destruction is often viewed as the opposite of value co-creation or as the other side of the same coin, in which interactions, practices, and resource incorporation between actors can lead to

negative outcomes rather than to generating value (Plé, 2017). However, Stieler et al. (2014) challenge the idea that co-creation and co-destruction are often direct opposites. In some cases, interactions can lead to value co-creation, co-destruction, and no-creation (Sthapit & Björk, 2020). Value no-creation refers to neutral outcomes, where interactions do not improve or diminish.

Studies on value co-destruction are expanding, with analyses identifying several major factors that contribute to its occurrence. These include resource misintegration (Laud et al., 2019; Plé, 2016), resource misuse (Hsu et al., 2021; Plé, 2016), and service failure (Hsu et al., 2021) during interactions. Resource misintegration occurs when companies and consumers fail to properly access, adapt, combine, or use resources in a way that supports the intended use (Laud et al., 2019). For example, when companies provide information that consumers misunderstand or fail to use correctly, it can lead to financial loss, frustration, and dissatisfaction.

Misuse is the failure to use resources as expected by the actors involved in the interaction (Plé & Cáceres, 2010). When companies and consumers interact, and each has a different view of the resources available, the interaction cannot go well; however, service failure occurs when the company cannot provide services or products as expected by consumers.

Companies or consumers occasionally fail to use resources appropriately, leading to value co-destruction as one party experiences a decline in well-being (Plé & Cáceres, 2010). This situation can occur when consumers are unable to apply skills and knowledge effectively, or when companies lack the necessary expertise to provide adequate services. Relating to this discussion, Hsu et al. (2021) divided resource misuse into three categories, namely misuse by consumers, companies, and both parties.

Value co-destruction can occur accidentally or intentionally, in line with the subsequent discussion (Plé & Cáceres, 2010). Unintentional value co-destruction occurs when interactions between actors fail due to a lack of resource capabilities. On the other hand, intentional value arises when one actor deliberately harms the other (Plé, 2016). From the perspective of consumers, value co-destruction can lead to both tangible losses, such as financial setbacks, and intangible losses, including disappointment, frustration as well as diminished trust in companies or services (Järvi et al., 2018).

2-3. Ease of Use on Value Co-Destruction

Ease of use refers to how effortlessly a person can operate a new technology (Davis, 1989). The concept is crucial in value co-creation, specifically in shaping interactions between companies and consumers. When technology is easy to use, it improves engagement of consumers and urges positive experiences. However, once consumers struggle to use service or product effectively, interactions that are meant to create value may lead to value co-destruction (Järvi et al., 2018).

This study proposes that when a technology is easy to use, consumers will have no difficulty using the model. The simplicity and accessibility of the technology contribute to a positive and enjoyable consumers' experience, improving value co-creation. Concerning value co-destruction, ease of use plays a crucial role in minimizing negative interactions. When consumers find a technology intuitive, the probability of frustration, misuse, or disengagement decreases, thereby reducing the occurrence of value co-destruction. The following statement serves as the hypothesis of this study.

Hypothesis 1 (H1): Ease of use has negative effect on value co-destruction.

2-4. Technological Self-Efficacy on Value Co-Destruction

Self-efficacy, as defined by Bandura's social learning theory (Bandura, 1986), refers to self-confidence in the ability to complete tasks and achieve success. Bandura categorizes self-efficacy into two levels of high and low. Individuals with high self-efficacy tend to approach problems with confidence, viewing challenges as opportunities for growth rather than obstacles to avoid. Therefore, consumers become resilient, capable of handling difficulties effectively, and can recover quickly from setbacks. In contrast to the first level, individuals with low self-efficacy often struggle to cope with problems. Therefore, consumers doubt their abilities, hesitate when faced with difficulties, and are more likely to give up quickly after encountering setbacks.

Technological self-efficacy refers to the confidence of individuals in their ability to adapt and employ new technology to accomplish tasks (McDonald & Siegall, 1992). This self-efficacy plays an important role in shaping technology adoption, particularly in organizational settings. Individuals with

high technological self-efficacy believe in capability to learn, use, and manage new technologies effectively. This confidence improves willingness to adopt the technologies, allowing consumers to engage with and incorporate new tools into workflow (Pan, 2020).

Consumers with high technological self-efficacy tend to adapt more easily to innovations introduced by companies. These individuals are generally more open to adopting new technologies, which can accelerate co-creation process (Alves & Mainardes, 2017). Confidence in employing technology allows consumers to explore and engage more effectively with digital services. However, this confidence can sometimes lead to an overestimation of one's abilities. Consumers who feel self-assured may take unnecessary risks, experiment with features without fully understanding the concept, or ignore guidance (Grubb, 2015). This behavior can cause usage errors and frustration, eventually leading to value co-destruction, as expectations of the service are not met. Therefore, the proposed hypothesis for this analysis is as follows.

Hypothesis 2 (H2): Technological self-efficacy has positive effect on value co-destruction.

2-5. Technological Self-Efficacy as a Moderator Variable

Several studies have explored technological self-efficacy, often treating it as an antecedent variable. For example, the studies conducted by Medici et al. (2023), and Xu et al. (2024) examined technological self-efficacy as a factor influencing other variables. However, some studies have considered it as a moderator variable.Hopp and Gangadharbatla (2016) positioned technological self-efficacy as a moderator in the relationship between attitudes towards augmented reality advertising and brand attitudes. On the other hand, Wu et al. (2023) explored consumers' self-efficacy as a representative of contract governance and value co-creation. Technological self-efficacy is also treated as a moderator, but in a different context; it is expected to strengthen the negative relationship between ease of use and value co-destruction. The argument is that consumers who are confident in their ability to use technology are less likely to struggle with new technology. This ability improves the perceived ease of use, which helps reduce value co-destruction. When consumers understand and effectively apply a technology, consumers are more likely to have a positive experience, leading to higher satisfaction with both technology and companies. The hypothesis proposed for the analysis of this study is as follows.

Hypothesis 3 (H3): Technological self-efficacy moderates the effect between ease of use and value co-destruction.

2-6. Value Co-Destruction on Word of Mouth

The concept of value co-destruction is the opposite of value co-creation (Plé, 2017), which focuses on generating positive value through collective efforts. Although co-creation improves mutual benefits, co-destruction occurs when interactions between companies and consumers leads to a decline in perceived value (Echeverri & Skålén, 2011). This process develops when interactions, practices, and resource integration between actors lead to negative outcomes, eventually diminishing the intended value of a service or product (Plé, 2016).

Value co-destruction can arise due to resource misuse and misintegration. Resource misuse occurs when reserves are applied incorrectly during interactions, leading to inefficiencies or unintended events. Consequently, misintegration occurs when resources are not effectively combined or used, leading to negative outcomes (Laud et al., 2019). This misintegration may arise from poor communication, conflicting objectives, and inefficient resource allocation, all of which can lead to frustration, dissatisfaction, and decreased perceived value for the participating parties (Laud et al., 2019; Lumivalo et al., 2023).

Value co-destruction can have a significant impact on word of mouth (WOM), specifically on electronic word-of-mouth. A study conducted by Sthapit et al. (2022) highlighted that poor customers' service can lead to distrust and negative emotions. When interactions between service providers and consumers lead to negative experiences, consequences such as dissatisfaction, distrust, and negative feedback may arise (Nam et al., 2020). These negative experiences contribute to value co-destruction and generate negative WOM that can reduce purchases and damage general reputation of companies. Therefore, the proposed hypothesis for this study is as follows.

Hypothesis 4 (H4): Value co-destruction has positive effect on word of mouth.

3. Methods

The population in this study consisted of consumers based in Indonesia who had used VTO application. The sample specifically included consumers aged 16 and above, as they were more likely to engage in online shopping. The selection of this age range was based on a study by Katadata (2022 ascited in Bayu, 2022), which found that millennials were the most active shoppers in e-commerce.

This study distributed questionnaires to 210 respondents, following the guideline of explanations proposed by Hair et al. (2019), which recommended a minimum sample size of 100 respondents. The analysis used a purposive sampling method, selecting respondents based on characteristics that matched the study criteria. Building on these steps, data was collected online through a Google form, which was shared with respondents through WhatsApp or email.

The statements in the questionnaire were measured using a 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). The questionnaire was developed based on previous study, as presented in Table 1.

Table 1. Constructs and Indicators

Constructs and Indicators
Ease of use (EoU) (Davis, 1989; Kim & Forsythe, 2008)
VTO was easy to learn
VTO was easy to do desired task
VTO was easy to use
Proficient in using VTO feature
Technological Self-Efficacy (TSE) (Hopp & Gangadharbatla, 2016)
Learned the features of the latest technology without the help of others
Confident in explaining how to use the latest technology to others
Confident in using advanced features of the latest technology
Value Co-Destruction (VCD) (Guan et al., 2022)
Not paying attention to VTO details
Ignoring the information provided in VTO
Incorrect use of VTO
Not following the instructions in using VTO
Word of Mouth (WOM) (Mishra et al., 2021)
Telling positive things about VTO
Recommending VTO to others
Encouraging others to try VTO

Data processing was conducted to describe the characteristics of sampled respondents and to test the hypothesis. The study applied Structural Equation Modeling (SEM) analysis, using AMOS software. Following the discussion, the model used in the analysis is illustrated in Figure 1.

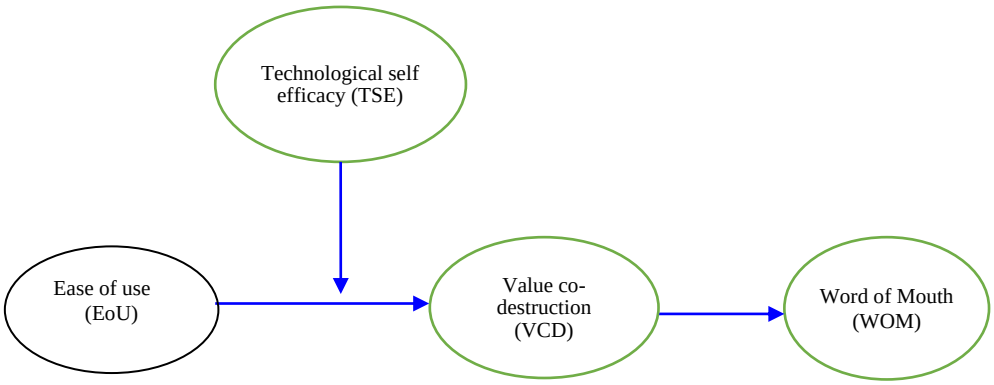

Fig. 1. Research Model

4. Results

The questionnaire was distributed online and completed by 210 respondents, all of whom were no less than 16 years old. The characteristics of respondents during the analysis are presented in Table 2.

Table 2. Respondents' Characteristics

Respondents' Characteristics		Total	Percentage (%)
Age	<20	80	38.1
	20-29	93	44.3
	30-39	15	7.1
	40-49	17	8.1
	50-59	5	2.4
Total		210	100
Average frequency of online shopping in a month	One time	35	16.7
	Twice	70	33.3
	Three times	56	26.7
	Four times	37	17.6
	More than four times	12	5.7
Total		210	100
Online shopping experience	< 2 years	32	15.2
	2- 4 years	80	38.1
	> 4 years	98	46.7
Total		210	100%

4-1. Reliability

Reliability refers to the extent to which an observed variable accurately measures a construct with minimal error. A reliable questionnaire should produce consistent results when administered multiple times. Although high reliability does not guarantee that the construct is measured accurately, it is important to note that reliability is a necessary but insufficient condition for validity. Reliability was assessed using composite reliability (CR) value in this study. A CR value of 0.7 or higher indicates no reliability issues. As the CR value increases, the internal consistency of a construct also improves, signifying that the statement items consistently represented the same latent construct (Hair et al., 2019).

4-2. Construct Validity

Construct validity assessed how well a set of questionnaire items represented the intended constructs in the study. This process was evaluated using two methods, namely Confirmatory Factor Analysis (CFA) and Average Variance Extract (AVE). CFA was performed by calculating the factor loading for each indicator using AMOS software. An indicator is considered a valid representation of construct when its factor loading value exceeded 0.5. The next step included calculating AVE value, where each construct should have AVE value of no less than 0.5 to show adequate convergence (Hair et al., 2019). The results of the validity test are presented in Table 3.

Table 3. The Results of Validity Test

Construct and Indicator	CFA Loading	AVE	Composite Reliability (CR)
Ease of Use (EoU)		0.62	0.90
VTO was easy to learn	0.807		
VTO was easy to do desired tasks	0.786		
VTO was easy to use	0.791		
Proficiency in using VTO feature	0.763		
Technological Self-Efficacy (TSE)		0.64	0.87
Learning the features of the latest technology without the help of others.	0.693		
Confidence in explaining how to use the latest technology to others	0.864		
Confidence in using advanced features of the latest technology.	0.83		
Value Co-Destruction (VCD)		0.53	0.78
Overlooking VTO details	0.686		
Ignoring the information provided in VTO	0.868		
Inaccurate use of VTO	0.620		
Not following the instructions in using VTO	0.721		
Word of Mouth (WOM)		0.53	0.76
Talking about it with close ones	0.693		
Recommending it to individuals nearby	0.864		
Encouraging loved ones to try it	0.830		

4-3. Discriminant Validity

Discriminant validity testing determines the extent to which a construct is distinct from others. According to Hair et al. (2019), discriminant validity is established when AVE value of two constructs is greater than the squared correlation value between the two corresponding constructs, as well as any other relevant criteria. As presented in Tables 3 and 4, AVE value for each construct exceeded the squared correlation between corresponding constructs, signifying issues with discriminant validity.

AVE values for ease of use and technological self-efficacy were 0.62 and 0.64, respectively, both of which exceeded the squared correlation of 0.34. Similarly, ease of use had AVE of 0.62, while co-destruction had an AVE of 0.53. Since AVE values were greater than the squared correlation of 0.01, discriminant validity was confirmed. AVE value of technological self-efficacy was 0.64 and co-destruction was 0.53, with squared correlation of 0.05, which was lower than both AVE values, further supporting discriminant validity. In the final test, the AVE of WOM (0.53) and ease of use (0.62) were higher than the squared correlation of 0.43, ensuring that constructs remained distinct.

Squared correlation between WOM and technological self-efficacy was 0.18, which was lower than the AVE value of WOM (0.53) and technological self-efficacy (0.64). Similarly, the value of co-destruction and WOM had a squared correlation of 0.03, which did not exceed the AVE value of WOM (0.53) and co-destruction (0.53). Since all squared correlation values were lower than the corresponding AVE values, there were no issues with discriminant validity.

Table 4. Correlation Matrix and Squared Correlation

	EoU	TSE	VCD	WOM
EoU	1.00	0.34	0.01	0.43
TSE	0.58	1.00	0.05	0.18
VCD	0.12	0.23	1.00	0.03
WoM	0.66	0.43	0.17	1.00

Notes: The diagonal elements represent the variance of each construct. The values above the diagonal indicate the squared correlation between constructs, while values below the diagonal represent the correlation coefficients between the constructs.

4-4. Hypothesis Testing

Hypothesis testing was conducted using SEM during the analysis. The results of the processed data are illustrated in Figure 2, while hypothesis testing is presented in Table 5. The path analysis of the structural model signified that ease of use had no significant effect on value co-destruction, as indicated by p-value = 0.619 (greater than the 0.05 significance threshold) and an estimated value of -0.05. This implies that H_1 is not supported. On the other hand, technological self-efficacy had a positive and significant effect on value co-destruction with p-value = 0.035 (less than 0.05) and an estimated value of 0.21, confirming that H_2 is supported. Additionally, interaction influenced value co-destruction with an estimated effect of 0.15 and a p-value of 0.038 (less than 0.05), providing evidence that H_3 is supported. Value co-destruction did not significantly impact WOM, as presented by an estimated value of 0.11 and a p-value of 0.131 (more than 0.05). The result signified that H_4 is not supported during the hypothesis examination.

The model fit tests indicated that the GFI and AGFI values were lower than the recommended thresholds. These indices assessed how well the model fit the data, where GFI is sensitive to sample size and AGFI adjusts GFI based on degrees of freedom. During the test, both values ranged between 0 and 1, with values closer to 1 showing a better model fit (Hair et al., 2019). The RMR value exceeded the specified cut-off value of 0.10, indicating a potential model fit issue. The RMSEA value was 0.096, which was above the ideal threshold of 0.08. However, according to Fabrigar et al. (1999), an RMSEA value between 0.08 to 0.10 was still considered within the marginal fit criteria. Based on these criteria, the model remained suitable for further analysis.

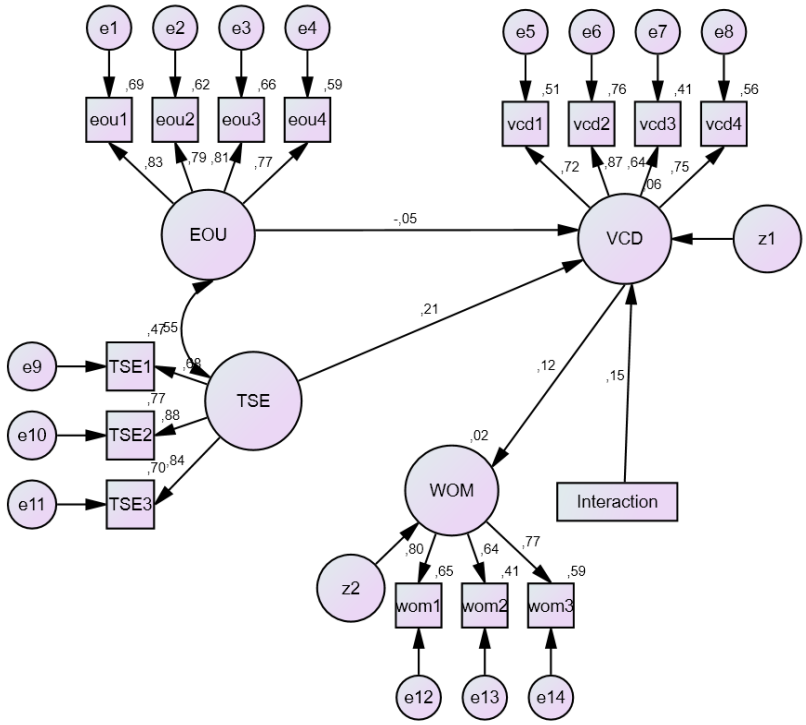

Fig. 2. Data Analysis Results

Table 5. Hypothesis Test Results

Hypotheses	Paths			Estimate	*p*	Result
H_1	EoU	→	VCD	-0.05	0.619	Not supported
H_2	TSE	→	VCD	0.21	0.035	Supported
H_3	Interaction	→	VCD	0.15	0.039	Supported
H_4	VCD	→	WOM	0.11	0.131	Not supported
Goodness of Fit			Cut off			
GFI	: 0.880		≥ 0.90			
AGFI	: 0.832		≥ 0.80			
RMR	: 0.134		< 0.10			
RMSEA	: 0.096		< 0.08			
Significance** p<0.05						

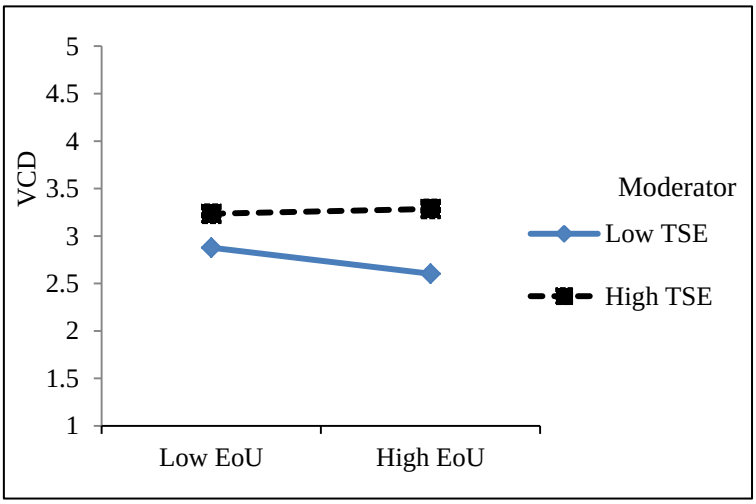

Fig. 3. Moderation Effect

Technological self-efficacy served as a moderator variable in this study and fell under the category of quasi-moderators since it both interacted with ease of use and influenced value co-destruction. The moderating effect of the analysis is illustrated in Figure 3. The straight line represents consumers with low technological self-efficacy in Figure 3. For these consumers, when the VTO application was easier to use, instances of value co-destruction tended to decrease. Consequently, the dashed line represented consumers with high technological self-efficacy. In this case, the ease of use of VTO had minimal impact on value co-destruction, as this factor occurred regardless of how easy the application was to use.

5. Discussion

The majority of respondents in this study belong to Generation Y and Z, with ages ranging from 20 to 29 years. These generations are known for their adaptability to new technology in all sectors. According to Bilgihan (2016), Gen Y and Z are highly sociable, tech-savvy, and media/tech literate as they have grown up in the digital era. Following the discussion, the lives of this generation are heavily influenced by the Internet (Nusair et al., 2013). Most respondents engaged in online shopping twice a month by average, and nearly half of them had over four years of online shopping experience. This implies that Gen Y and Z are accustomed to online activities, including e-commerce and m-commerce.

This study explored the factors influencing value co-destruction in VTO applications. The results indicated that ease of use did not contribute to value co-destruction. This result supported the study conducted by Frasquet-Deltoro et al. (2019), who proposed that user-friendly technology improved value co-creation rather than co-destruction. Currently, several companies incorporated VTO to help consumers make more informed purchasing decisions. This feature allowed consumers to virtually try on clothes, cosmetics, or accessories, improving buying experience, and making it efficient and enjoyable. The process of ease of use promoted higher satisfaction among consumers and increased value co-creation. However, using VTO application required some level of consumer knowledge. For generations Y and Z, born in digital era, adapting to such technology were generally effortless. Since these generations were tech-savvy, navigating VTO tools would be easy, improving greater interaction between marketers and consumers. Therefore, the seamless experience supported co-creation while minimizing the possibility of value co-destruction.

Technological self-efficacy refers to the confidence of an individual to effectively use certain technologies. Individuals with high technological self-efficacy are more capable of handling complex or unfamiliar technologies and tend to persist despite the challenge. This proactive behavior often leads to positive outcomes, such as value co-creation, where both parties benefit from the interaction. As technological self-efficacy of consumers improves, value co-creation activities conducted increases (Alves & Mainardes, 2017).

Hypothesis testing in this study indicated different results, where technological self-efficacy had a positive effect on value co-destruction. This result signified that when consumers possessed high technological self-efficacy, excessive self-confidence could develop concerning their abilities. This type of self-confidence could cause consumers to overestimate their ability to engage in value co-creation process in different directions (Mumford & Zettinig, 2022).

High technological self-efficacy could have both positive and negative impacts on experiences of consumers. On the positive side, when consumers effectively employ technological abilities to navigate VTO properly, consumers could maximize the benefits of the technology. The interaction between consumers and companies improved satisfaction and increased value co-creation. Consequently, excessive technological self-efficacy led to misuse of technological resources, eventually causing value co-destruction. For example, overconfident consumers ignored important information or guidelines for using VTO application, assuming the process was understandable. As a result, consumers encountered technical failure, leading to frustration, negative emotions, and consumer dissatisfaction with the experience (Järvi et al., 2018).

Consumers with high technological self-efficacy often set high expectations for interactions with the technology. However, these expectations create a gap between perception and reality. Consumers believe that technology-related problems could be easily solved, but in reality, problems continued to occur, resulting in dissatisfaction and disappointment, which ultimately leads to value co-destruction (Prior & Marcos-Cuevas, 2016).

The study analysis signified that value co-destruction did not affect WOM. These results contradicted a study by Arıca et al. (2022), who stated that value co-destruction affected WOM. A possible explanation for this discrepancy was the variation in individual behavior concerning sharing negative experiences. Not all consumers decided to share negative experiences with the public. Several factors influenced this decision, including social norms, peer influence, and individual motivation (Ogunbodede et al., 2021). Relating to this discussion, some consumers preferred resolving issues privately rather than broadcasting grievances on social media or review platforms.

Emotional and cognitive responses to value co-destruction played a crucial role in determining how consumers engaged in WOM communication. Minor complaints or slight disappointments were less expected to provoke strong emotional reactions, reducing the chances of consumers sharing experiences (Cheung & Lee, 2012). Although some consumers felt the need to express dissatisfaction publicly, others decided to internalize the disappointment by discussing it. Many preferred to directly contact authorized staff to make complaints or grievances rather than conduct WOM. In this case, the way companies responded to complaints significantly influenced the consumer-brand relationship.

Another reason value co-destruction did not affect WOM was that some consumers adjusted resources to use technology services after the initial failure with VTO (Strack & Deutsch, 2004).The negative response that was initially felt changed into a positive response, reducing the impact of co-destruction on WOM.

This study indicated that technological self-efficacy moderated the relationship between ease of use and value co-destruction. Specifically, self-efficacy enhanced the negative influence between ease of use and value co-destruction. For consumers with high technological self-efficacy, the ease of using VTO did not contribute to value co-destruction. Consequently, for consumers with low technological self-efficacy, ease of use played a critical role in preventing value co-destruction.

Consumers with high technological self-efficacy trust their ability to navigate and use technology effectively. They can overcome difficulties when using VTO, regardless of whether the technology is easy or complex. As a result, VTO does not contribute to value co-destruction for these consumers, as they are confident in troubleshooting issues and adapting to the system. Consumers with low technological self-efficacy rely heavily on ease of use when interacting with the VTO application. Lacking confidence in their ability to handle new technology, these consumers tend to avoid complex systems quickly when encountering problems. Thus, these consumers need ease of use in technology to prevent value co-destruction.

6. Conclusions

One of the significant findings of this study was that technological self-efficacy could moderate the negative effect between ease of use and value co-destruction, and also contribute to value co-destruction. The analysis signified that ease of use did not impact value co-destruction. Meanwhile, this study confirmed that ease of use did not influence value co-destruction; rather, it improved the experience for consumers, generating positive interaction between consumers and companies. As a result, ease of use played a significant role in value co-creation but not in value co-destruction.

The theoretical implications of this study indicated that technological self-efficacy did not often have positive impact on digital marketing. Even though consumer confidence in using technology was generally beneficial, overconfidence led to unrealistic expectations that did not support actual experiences. Consumers with high technological self-efficacy felt capable of using several kinds of technology effortlessly. As a result, they overlooked important instructions in the application. This kind of behavior caused negative emotions and resulted in value co-destruction.

The practical implication of this study signified that companies needed to develop a technology that would be easy for consumers to use. This process could be implemented by forming a simple interface design for consumers with low technological self-efficacy to understand how the technology worked. The main features of the application could be indicated in the form of icons and clear text to provide detailed information to consumers.

The application should be equipped with a guide or tutorial explaining how to use the VTO application, specifically for first-time consumers. The guide can be provided as a short sample or video showing how to navigate and use the VTO features effectively. In this context, the application

could also be equipped with an option to share the results on social media or with friends to receive comments and feedback, improving the experiences of consumers.

This study has several limitations that present opportunities for future research. First, the analysis focused solely on the VTO application as the study object. Future research could explore other self-service technology applications. Second, the analysis primarily examined value co-destruction without considering co-creation. Further studies could combine value co-destruction and co-creation in the same model to provide more comprehensive results.

References

Alimamy, S. (2018). *The Effect of Co-Creation Through Exposure To Augmented Reality On Customer Perceived Risk, Perceived Trust And Purchase Intention* (Issue April). University of Otago.

Alves, H., & Mainardes, E. W. (2017). Self-efficacy, trust, and perceived benefits in the co-creation of value by consumers. *International Journal of Retail and Distribution Management*, *45*(11), 1159–1180. https://doi.org/10.1108/IJRDM-05-2016-0071

Arıca, R., Polat, I., Cobanoglu, C., Çorbacı, A., Chen, P. J., & Hsu, M. J. (2022). Value co-destruction and negative e-WOM behavior: the mediating role of tourist citizenship. *Tourism Review*, *77*(4), 1116–1134. https://doi.org/10.1108/TR-05-2021-0219

Bandura, A. (1986). The Explanatory and Predictive Scope Of Self-Efficacy Theory. *Journal of Social and Clinical Psychology*, *4*(3), 359–373. https://doi.org/10.1521/jscp.1986.4.3.359

Baytar, F., Chung, T., & Shin, E. (2020). Evaluating garments in augmented reality when shopping online. *Journal of Fashion Marketing and Management*, *24*(4), 667–683. https://doi.org/10.1108/JFMM-05-2018-0077

Bayu, D. (2022). *Riset: Milenial Paling Banyak Belanja di E-Commerce pada 2021*. DataIndonesia.Id. https://dataindonesia.id/digital/detail/survei-milenial-paling-banyak-belanja-di-ecommerce-pada-2021

Bilgihan, A. (2016). Gen y customer loyalty in online shopping: An integrated model of trust, user experience and branding. *Computers in Human Behavior*, *61*, 103–113. https://doi.org/10.1016/j.chb.2016.03.014

Cheung, C. M. K., & Lee, M. K. O. (2012). What drives consumers to spread electronic word of mouth in online consumer-opinion platforms. *Decision Support Systems*, *53*(1), 218–225. https://doi.org/10.1016/j.dss.2012.01.015

Davis, F. D. (1989). Perceived Usefulness , Perceived Ease of Use , and User Acceptance of. *MIS Quarterly*, *13*(3), 319–340. www.jstor.org/stable/249008

Echeverri, P., & Skålén, P. (2011). Co-creation and co-destruction: A practice-theory based study of interactive value formation. *Marketing Theory*, *11*(3), 351–373. https://doi.org/10.1177/1470593111408181

Fabrigar, L. R., Wegener, D. T., Maccallum, R. C., & Strahan, E. J. (1999). Evaluating the Use of Exploratory Factor Analysis in Psychological Research. *Psychological Methods*, *4*(3), 272–299.

Frasquet-Deltoro, M., Alarcón-del-Amo, M. del C., & Lorenzo-Romero, C. (2019). Antecedents and consequences of virtual customer co-creation behaviours. *Internet Research*, *29*(1), 218–244. https://doi.org/10.1108/IntR-06-2017-0243

Frau, M., Cabiddu, F., & Muscas, F. (2018). When multiple actors' online interactions lead to value co-destruction: An explorative case study. In *Diverse Methods in Customer Relationship Marketing and Management* (pp. 163–180). https://doi.org/10.4018/978-1-5225-5619-0.ch009

Galdolage, B. S. (2021). Barriers for Entering the Digital World: Exploring Customer Value Co-destruction in Self-Service Technologies. *FIIB Business Review*, *10*(3), 276–289. https://doi.org/10.1177/23197145211022016

Grubb, M. D. (2015). Overconfident consumers in the marketplace. *Journal of Economic Perspectives*, *29*(4), 9–36. https://doi.org/10.1257/jep.29.4.9

Guan, X., Gong, J., Liu, Q., & Huan, T. C. (2022). Constructing a value co-destruction behavior scale in business-to-customer service context. *Service Industries Journal*, 1–21. https://doi.org/10.1080/02642069.2022.2128779

Guan, X., Gong, J., Xie, L., & Huan, T. C. (2020). Scale development of value co-destruction behavior in tourism. *Tourism Management Perspectives*, *36*(October), 100757. https://doi.org/10.1016/j.tmp.2020.100757

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate Data Analysis* (eight). www.cengage.com/highered

Hauke-Lopes, A., Ratajczak-Mrozek, M., & Wieczerzycki, M. (2022). Value co-creation and co-destruction in the digital transformation of highly traditional companies. *Journal of Business & Industrial Marketing*, *6*(July 2022), 1316–1331. https://doi.org/10.1108/jbim-10-2021-0474

Hopp, T., & Gangadharbatla, H. (2016). Novelty Effects in Augmented Reality Advertising Environments: The Influence of Exposure Time and Self-Efficacy. *Journal of Current Issues and Research in Advertising*, *37*(2), 113–130. https://doi.org/10.1080/10641734.2016.1171179

Hsu, P., Nguyen, T. K., & Huang, J. (2021). Value co-creation and co-destruction in self-service technology : A customer ' s perspective. *Electronic Commerce Research and Applications*, *46*(101), 101029. https://doi.org/10.1016/j.elerap.2021.101029

Järvi, H., Kähkönen, A. K., & Torvinen, H. (2018). When value co-creation fails: Reasons that lead to value co-destruction. *Scandinavian Journal of Management*, *34*(1), 63–77. https://doi.org/10.1016/j.scaman.2018.01.002

Jiang, Q., Sun, J., Yang, C., & Gu, C. (2022). The impact of perceived interactivity and intrinsic value on users' continuance intention in using mobile augmented reality virtual shoe-try-on function. *Systems*, *10*(1). https://doi.org/10.3390/systems10010003

Kim, J., & Forsythe, S. (2008). Sensory Enabling Technology Acceptance Model (SE-TAM): A Multiple-Group Structural Model Comparison. *Psychology & Marketing*, *25*(9), 901–922. https://doi.org/10.1002/mar.20245

Kim, K., Byon, K. K., & Baek, W. (2020). Customer-to-customer value co-creation and co-destruction in sporting events. *Service Industries Journal*, *40*(9–10), 633–655.

https://doi.org/10.1080/02642069.2019.1586887
Kumar, A., & Lim, H. (2008). Age differences in mobile service perceptions: Comparison of Generation Y and baby boomers. *Journal of Services Marketing*, *22*(7), 568–577. https://doi.org/10.1108/08876040810909695
Laud, G., Bove, L., Ranaweera, C., Leo, W. W. C., Sweeney, J., & Smith, S. (2019). Value co-destruction: a typology of resource misintegration manifestations. *Journal of Services Marketing*, *31*(7), 866–889. https://doi.org/10.1108/JSM-01-2019-0022
Lumivalo, J., Tuunanen, T., & Salo, M. (2023). Value Co-Destruction : A Conceptual Review and Future Research Agenda. *Journal of Service Research*, *0*(0), 1–18. https://doi.org/10.1177/10946705231177504
Lusch, R. F., & Vargo, S. L. (2006). Service-dominant logic: reactions, reflections and refinements. *Marketing Theory 2006*, *6*(3), 281–288. https://doi.org/10.1177/1470593106066781
Lv, X., Zhang, R., & Li, Q. (2021). Value co-destruction: The influence of failed interactions on members' behaviors in online travel communities. *Computers in Human Behavior*, *122*(April), 106829. https://doi.org/10.1016/j.chb.2021.106829
McDonald, T., & Siegall, M. (1992). The effects of technological self-efficacy and job focus on job performance, attitudes, and withdrawal behaviors. *Journal of Psychology: Interdisciplinary and Applied*, *126*(5), 465–475. https://doi.org/10.1080/00223980.1992.10543380
Medici, G., Grote, G., Igic, I., & Hirschi, A. (2023). Technological self-efficacy and occupational mobility intentions in the face of technological advancement: a moderated mediation model. *European Journal of Work and Organizational Psychology*, *32*(4), 538–548. https://doi.org/10.1080/1359432X.2023.2197215
Mishra, A., Shukla, A., & Sharma, S. K. (2021). Psychological determinants of users' adoption and word-of-mouth recommendations of smart voice assistants. *International Journal of Information Management*, *67*. https://doi.org/10.1016/j.ijinfomgt.2021.102413
Mumford, J. Van, & Zettinig, P. (2022). Co-creation in effectuation processes: A stakeholder perspective on commitment reasoning. *Journal of Business Venturing*, *37*(4). https://doi.org/10.1016/j.jbusvent.2022.106209
Nam, K., Baker, J., Ahmad, N., & Goo, J. (2020). Dissatisfaction, Disconfirmation, and Distrust: an Empirical Examination of Value Co-Destruction through Negative Electronic Word-of-Mouth (eWOM). *Information Systems Frontiers*, *22*(1), 113–130. https://doi.org/10.1007/s10796-018-9849-4
Nusair, K. K., Bilgihan, A., Okumus, F., & Cobanoglu, C. (2013). Generation Y travelers' commitment to online social network websites. *Tourism Management*, *35*, 13–22. https://doi.org/10.1016/j.tourman.2012.05.005
Ogunbodede, O., Papagiannidis, S., & Alamanos, E. (2021). Value Co-Creation and Co-Destruction Behaviour: Relationship with Basic Human Values and Personality Traits. *International Journal of Consumer Studies*, *46*(4), 1278–1298. https://doi.org/https://doi.org/10.1111/ijcs.12757
Pan, X. (2020). Technology Acceptance, Technological Self-Efficacy, and Attitude Toward Technology-Based Self-Directed Learning: Learning Motivation as a Mediator. *Frontiers in Psychology*, *11*(October). https://doi.org/10.3389/fpsyg.2020.564294
Plé, L. (2016). Studying customers' resource integration by service employees in interactional value co-creation. *Journal of Services Marketing*, *30*(2), 152–164. https://doi.org/10.1108/JSM-02-2015-0065
Plé, L. (2017). Why Do We Need Research on Value Co-destruction? *Journal of Creating Value*, *3*(2), 162–169. https://doi.org/10.1177/2394964317726451
Plé, L., & Cáceres, R. C. (2010). Not always co-creation: Introducing interactional co-destruction of value in service-dominant logic. *Journal of Services Marketing*, *24*(6), 430–437. https://doi.org/10.1108/08876041011072546
Prahalad, C. K., & Ramaswamy, V. (2004). Co-creating unique value with customers. *Strategy & Leadership*, *32*(3), 4–9.
Prior, D. D., & Marcos-Cuevas, J. (2016). Value co-destruction in interfirm relationships: The impact of actor engagement styles. *Marketing Theory*, *16*(4), 533–552. https://doi.org/10.1177/1470593116649792
Riyanto, G. P., & Pertiwi, W. K. (2024). Bisnis E-commerce Indonesia 2024 Tembus Rp 1.026 Triliun, Didorong Tren Live Shopping. *Kompas.Com*. https://tekno.kompas.com/read/2024/11/13/17335027/bisnis-e-commerce-indonesia-2024-tembus-rp-1026-triliun-didorong-tren-live
Smith, A. M. (2013). The value co-destruction process: A customer resource perspective. *European Journal of Marketing*, *47*(11–12), 1889–1909. https://doi.org/10.1108/EJM-08-2011-0420
Sthapit, E., & Björk, P. (2019). Sources of value co-destruction: Uber customer perspectives. *Tourism Review*, *74*(4), 780–794. https://doi.org/10.1108/TR-12-2018-0176
Sthapit, E., & Björk, P. (2020). Towards a better understanding of interactive value formation: Three value outcomes perspective. *Current Issues in Tourism*, *23*(6), 693–706. https://doi.org/10.1080/13683500.2018.1520821
Sthapit, E., Stone, M. J., & Björk, P. (2022). Sources of Value co-creation, co-destruction and co-recovery at Airbnb in the Context of the COVID-19 Pandemic. *International Journal of Hospitality and Tourism Administration*, *00*(00), 1–28. https://doi.org/10.1080/15256480.2022.2092249
Stieler, M., Weismann, F., & Germelmann, C. C. (2014). Co-destruction of value by spectators: The case of silent protests. *European Sport Management Quarterly*, *14*(1), 72–86. https://doi.org/10.1080/16184742.2013.865249
Strack, F., & Deutsch, R. (2004). Reflective and impulsive determinants of social behavior. *Personality and Social Psychology Review*, *8*(3), 220–247. https://doi.org/10.1207/s15327957pspr0803_1
Tandon, U. (2023). Chatbots, virtual-try-on (VTO), e-WOM: modeling the determinants of attitude' and continued intention with PEEIM as moderator in online shopping. *Global Knowledge, Memory and*

Communication. https://doi.org/10.1108/GKMC-06-2022-0125

Vargo, S. L., & Lusch, R. F. (2004). Evolving to a New Dominant Logic for Marketing. *The Journal of Marketing*, *68*(1), 1–17. https://doi.org/10.1300/J047v07n04_02

Vongurai, R. (2021). Factors Influencing Experiential Value Toward Using Cosmetic AR Try-on Feature in Thailand. *Journal of Distribution Science*, *19*(1), 75–87. https://doi.org/10.15722/jds.19.1.202101.75

Wu, D., Liu, T., Lin, X., & Li, J. (2023). Contract governance and value co-creation in virtual community: the moderating effect of psychological ownership. *Innovation: Organization and Management*, *25*(1), 80–110. https://doi.org/10.1080/14479338.2022.2055039

Xie, C., Yu, J., Huang, S. (Sam), Zhang, K., & Ou Yang, D. (2023). The 'magic of filter' effect: Examining value co-destruction of social media photos in destination marketing. *Tourism Management*, *98*(March), 104749. https://doi.org/10.1016/j.tourman.2023.104749

Xu, S., Khan, K. I., & Shahzad, M. F. (2024). Examining the influence of technological self-efficacy, perceived trust, security, and electronic word of mouth on ICT usage in the education sector. *Scientific Reports*, *14*(1). https://doi.org/10.1038/s41598-024-66689-4

Zhang, T., & Torres, E. (2020). Value co-creation and technological progression : a critical review. *European Business Review*, *32*(4), 687–707. https://doi.org/10.1108/EBR-08-2019-0149