THE INFLUENCE OF DIGITAL TECHNOLOGY, CUSTOMER EXPERIENCE, AND CUSTOMER ENGAGEMENT ON E-COMMERCE CUSTOMER LOYALTY

[1]RUDY, [2]HARJANTO PRABOWO, [3]ASNAN FURINTO, [4]MOHAMMAD HAMSAL

[1,2,3,4]Management Department, BINUS Business School Doctor of Research in Management,

Bina Nusantara University, Indonesia

[1]Information Systems Department, School of Information Systems, Bina Nusantara University, Indonesia

E-mail: [1]rudy@binus.ac.id, [2]harprabowo@binus.edu, [3]afurinto@binus.edu, [3]mhamsal@binus.edu

ABSTRACT

E-commerce players need appropriate strategies to reach firm performance and sustainability. Earlier research has investigated this question by examining the relationships between customer experience and customer engagement and customer experience and customer loyalty. This research offers novelty in digital technology's role as a variable that affects customer experience and customer engagement and the effects of customer experience and customer engagement on customer loyalty in Indonesian e-commerce. This research used descriptive survey and explanatory survey as research methods. Serving as the analysis units in this research were individuals and serving as observation units were e-commerce retail customers. Respondents' data were analyzed with SEM-AMOS. The research results showed that digital technology could be applied to form customer experience and customer engagement, and eventually, it could also be used to build customer loyalty.

Keywords: *Digital Technology, Customer Experience, Customer Engagement, Customer Loyalty, E-Commerce Retail*

1. INTRODUCTION

E-commerce retail companies are challenged to identify and keep up with customer behaviors and wishes at present and in the future. They must also ensure that the online strategies they implement can attract and win a wide range of e-commerce customers [1]. The business world today is driven by customers and is focused on fulfilling customers' demands. E-commerce players are pushed to analyze customer data and transactions. Implementation of appropriate strategies will be able to not only attract and retain customers but also build brand personality, and it will eventually give a business advantage in the competition [2].

E-commerce customer experience should be considered and managed as a strategic process to create customer value, differentiation, customer satisfaction, customer loyalty, and competitive advantage. Customer experience arises as a marketing concept to build a unique, pleasing, and impressive experience [3]. Improving customer experience requires a greater amount of data or accurate measurement of customers and actions

with a greater impact on the relationship between customers and firm profits [4]. Meanwhile, engagement is a fresh concept in marketing literature. It is seen as the fundamental driving force behind customer behaviors and decision-making in the post-modern era [5]. Early studies' engagement concept showed that a customer who is engaged would exhibit a greater level of loyalty to a brand [6]. As pointed out by Roberts (2005) [7], marketers see engagement as a definitive term for online mechanisms that generate competitive advantages, benefits, and contributions to the formation of "loyalty beyond reason".

Integrated technology use helps with customer personal experience, including such digital experience as the use of sites, cellular devices, or cellular applications [8]. Digital technologies transform a company's customer-related operations, and thus the company needs to find effective digital business strategies by using digital technologies [9]. New technologies spur a company to remodel the way it interacts and builds relations with customers [10]. The development of Internet technologies and the increase in the number of Internet users require

companies to devise diverse strategies to retain and increase customers, especially now that e-commerce has become an indispensable part of everyday life [11]. By promoting technology and digital services use in personal and professional life, most ASEAN people will become accustomed to digital technology use (i.e., they become digital natives) and fully find comfort in the online world [12].

The largest e-commerce transactions in Indonesia in 2018 occur in the fashion and beauty category, valued at US$2.307 billion. Similarly, in 2017, the transactions reached a value of US$2.466 billion [13]. In 2019, this category had a transaction value of US$4.79 billion. These figures give the fashion and beauty category greater transaction values than other categories such as electronics and physical media with a value of US$4.73 billion, food and personal care with a value of US$3.17 billion, and furniture and appliances with a value of US$2.91 billion [14]. This inevitably makes the fashion and beauty category the most attractive to e-commerce customers in Indonesia.

This research also examines the role of digital technology on customer engagement and customer experience. As well as examining the role of the firm reputation as moderating on relationships between customer engagement and customer loyalty. The novelty of this research is the role of digital technology as a variable that affects customer experience and customer engagement, as well as the influence of customer experience and customer engagement on customer loyalty in e-commerce in Indonesia. The focus of this research is on e-commerce retail in Indonesia, especially fashion and beauty products, which are currently still growing. This research will explore how the perception of customers (who have made transactions) on the relationship between digital technology (DT), customer experience (CX), customer engagement (CE), firm reputation (FR), and customer loyalty (CL). So that at the end of this research will contribute theoretically and managerially to the growth of e-commerce retail in Indonesia.

2. THEORETICAL FRAMEWORK

2.1 The Relationship Between Digital Technologies and Customer Experience

Empirical studies examining the impact of technological designs on customer shopping experience are still limited. Research findings confirmed that product personalization through gamification interface positively effects on in-process experience [15]. Personalization and interactivity are the drivers of digital technologies toward customer experience [16]. Many opportunities are available for retailers to use smart technologies and for customers to share their experiences in a broader range. There is a need for retailers to use smart technologies and recognize how they influence customer experience, both positively and negatively [17]. Based on the discussion above, the following hypothesis is proposed:

H1: Digital technologies have a positive effect on customer experience in the e-commerce retail environment.

2.2 The Relationships Between Digital Technologies and Customer Engagement

Presently more users utilize cellular applications to meet their information needs and to perform activities related to traveling. As a result, customer engagement (customer attraction and retention) with mobile travel applications becomes crucial for travel agencies [18]. Technological attraction functionally, socially, and physically has a positive relationship with community involvement, while community involvement has a relationship with social commerce engagement. It can thus be said that a causal mechanism in which technological attraction influences social commerce engagement has occurred [19]. An organization's support for the information technology system enables customers to get involved with it without coming to its stores in person and discussing some issues with its representatives face to face. The use of the information technology system can increase customer engagement with an organization [20]. Based on the discussion above, the following hypothesis is proposed:

H2: Digital technologies have a positive effect on customer engagement in the e-commerce retail environment.

2.3 The Relationship Between Customer Experience and Customer Engagement

Pleasing, joyful, and exciting experiences can motivate brand attachment. Brand experience in integrated resorts has multidimensional, varied effects on brand attachment [21]. Empirical research results identified that customer experience supports and positively effects on community engagement [22]. There is a strong need for an inquiry into such existing marketing constructs as service quality, customer commitment, and customer engagement concerning customer experience and interactivity [23]. There is a significant positive relationship between customer

experience and customer engagement [24]. Based on the discussion above, the following hypothesis is proposed:

H3: Customer experience has a positive effect on customer engagement in the e-commerce retail environment.

2.4 The Relationship Between Customer Experience and Customer Loyalty

Customer experience may be considered an important strategic objective. It is related to such marketing outcomes as customer loyalty, satisfaction, and word of mouth [25]. A positive and convenient experience can raise customers' satisfaction, loyalty, partiality, and value throughout their lifetimes, leading to competitive advantage [26]. One of the critical elements in the understanding and managing customer experience is the ability to measure and monitor customer reactions to what is offered by a company, especially about customer behavior and perception [23]. Customer experience is imperative for developing loyalty and reaching firm sustainability. In particular, firm performances influenced directly by customer loyalty through purchase behavior and indirectly through customer attitude toward the brand [27]. Based on the discussion above, the following hypothesis is proposed:

H4: Customer experience has a positive effect on customer loyalty in the e-commerce retail environment.

2.5 The Relationship Between Customer Engagement and Customer Loyalty

Engaging customers in marketing has some marketing outcomes like word of mouth, loyalty, value gain, wallet share and cross-selling [28]. Pine & Gilmore (1999) suggest that experience can be created by various service providers, starting from banking to aviation operators. Experience creates an inextricable relationship between customers and service providers, leading to strong engagement and loyalty and generating a competitive advantage [29]. Customer engagement in predicting brand service loyalty produces formidable support to the prominent role of customer engagement in loyalty-building [30]. Customer engagement has a positive relationship with repurchase intention and word of mouth and eventually affects loyalty behavior. It has been empirically validated that customer engagement and customer loyalty are associated with various C2C online shopping platforms [31]. Based on the discussion above, the following hypothesis is proposed:

H5: Customer engagement has a positive effect on customer loyalty in the e-commerce retail environment.

2.6 The Relationship Between Customer Engagement and Customer Loyalty with Moderation by Firm Reputation

Initiating customer engagement is less useful for companies with a strong reputation. These companies are at greater risk from the negative potentials of customer engagement [32]. A firm reputation is underlain by stakeholder perception and the activities performed to reinforce such perception. In managing reputation, companies are involved in the efforts to maintain and improve their reputation. This is because firm reputation is an invaluable resource to companies, just like physical and financial resources are. Firm reputation can be managed by active involvement in activities that are aimed at improving the companies' competencies in creating value. Based on Tobin-q, firm reputation positively moderates the relationship between employee added value and firm performance [33]. It also strengthens the relationship between innovation service and cross buying intention [34]. Firm reputation has a positive effect on customer loyalty [35]. Based on the discussion above, the following hypothesis is proposed:

H6: Firm reputation has a positive effect on the relationship between customer engagement and customer loyalty in the e-commerce retail environment.

3. RESEARCH METHODS

This research used the explanatory survey method. Serving as analysis units in this research were individuals and serving as observation units were e-commerce retail customers in Indonesia who had made a transaction at some point in the past (i.e., made a purchase). Data were collected by the survey method to obtain information from the research objects. The explanatory survey was conducted to figure out the conditions of the variables examined. The data used in this research were of the quantitative type. The quantitative data were derived from primary data sources. Primary data were from empirical data collected through a questionnaire survey on customers of e-commerce retailers (i.e., online retailers registered as members of the Indonesian E-Commerce Association) who had made a transaction at some point the past in the fashion and beauty category. The questionnaire distributed to the respondents asked close-ended questions regarding occupation, gender, age,

transaction frequency, and type of e-commerce platform visited to gain some data and information. Information on the research variables was extracted by asking some close-ended questions, in which customers selected the most appropriate answers through a four-point Likert scale (1–4). The sampling technique employed here was the simple random sampling (probability sampling) technique. This technique was applied to respondents who had met the criteria, were able to provide the information needed and select randomly. The respondents of this research were customers of the IdEA (Indonesian E-Commerce Association)-registered e-commerce retailers who had made a purchase transaction at some point in the past via websites and/or mobile apps.

4. RESULTS

The research was conducted on e-commerce retail customers with the fashion and beauty product category in Indonesia who have made transactions on 36 e-commerce retail sites in Indonesia and are members of the Indonesian E-commerce Association (IDEA). The questions were asked to measure five research variables, namely digital technology, customer experience, customer engagement, firm reputation, and customer loyalty. A total of 400 complete data were used for data processing. Data processing was carried out to conduct descriptive analysis and to measure the research model to test the research hypothesis. Measurement of the research model was carried out by using the Structural Equation Modeling (SEM) method using AMOS 22 software.

Respondents in this study were mostly female as many as 216 respondents (54%) and male as many as 184 respondents (46%). Most of respondents are in aged 26-35 years old were 192 respondents (48%), and those aged between 36-46 years old were 93 respondents (23%). This indicates that the respondents involved are of productive age and fall into the millennial category who are familiar with gadgets. This is also strengthened by 326 respondents (81.5%) who use the mobile application to make transactions.

4.1 Measurement Model
4.1.1 CFA of the variable digital technologies

The variable digital technologies in this research consisted of 15 questions (indicators) within three dimensions: interaction, personalization, and ease of use. Based on the SFL values as shown in Table 1, the three dimensions and 15 questions were declared valid. In other words, the dimensions and questions were valid to

measure the variable digital technologies. The three dimensions and the questions were highly reliable to measure the variable digital technologies based on the CR and VE values.

4.1.2 CFA of the variable customer experience

This research's variable customer experience consisted of 13 questions (indicators) within three dimensions: sensorial, pragmatic, and relational. Based on the SFL values shown in Table 1, the dimensions and indicators scored greater than 0.5, except the relational size, which scored 0.30. Thus, the relational dimension was declared invalid to measure the variable customer experience. Based on the CR and VE values, the sensorial and pragmatic dimensions, as well as the questions, were highly reliable to measure the variable customer experience.

4.1.3 CFA of the variable customer engagement

This research's variable customer engagement consisted of 13 questions (indicators) within three dimensions: cognitive, emotional, and behavioral. Based on the SFL values as shown in Table 1, the three dimensions and 13 questions were declared valid. In other words, the dimensions and questions were valid to measure the variable customer engagement. Based on the CR and VE values, the three dimensions and the questions were highly reliable to measure the variable customer engagement.

4.1.4 CFA of the variable firm reputation

The variable firm reputation in this research consisted of five questions (indicators). Based on the SFL values as shown in Table 1, every question was declared valid to measure the variable firm reputation. The questions were highly reliable to measure the variable firm reputation based on the CR and VE values.

4.1.5 CFA of the variable customer loyalty

The variable customer loyalty in this research consisted of ten questions (indicators) within two dimensions: repurchase intention and word of mouth. Based on the SFL values as shown in Table 1, the two dimensions and ten questions were declared valid. In other words, the dimensions and questions were valid to measure the variable customer loyalty. Based on the CR and VE values, the two dimensions and the questions were highly reliable to measure the variable customer loyalty.

Table 1: Validity and Reliability Measurement

Variable / Dimension	SFL ≥ 0.5	CR ≥ 0.7	VE ≥ 0.5	Status
DIGITAL TECHNOLOGY (DT)		0.85	0.65	Reliable
Interaction	0.92	0.92	0.66	Valid & Reliable
Personalization	0.75	0.86	0.55	Valid & Reliable
Ease of Use	0.74	0.79	0.49	Valid & Reliable
CUSTOMER EXPERIENCE (CX)		0.71	0.49	Reliable
Sensorial	0.98	0.86	0.54	Valid & Reliable
Pragmatic	0.66	0.87	0.63	Valid & Reliable
Relational	0.30	0.91	0.71	Not Valid & Reliable
CUSTOMER ENGAGEMENT (CE)		0.87	0.69	Reliable
Cognitive	0.74	0.85	0.54	Valid & Reliable
Emotional	0.99	0.84	0.56	Valid & Reliable
Behavioral	0.73	0.81	0.59	Valid & Reliable
CUSTOMER LOYALTY (CL)		0.65	0.48	Reliable
Repurchase	0.75	0.87	0.52	Valid & Reliable
Word of Mouth	0.63	0.91	0.72	Valid & Reliable
FIRM REPUTATION (FR)		0.84	0.52	Reliable

4.2 Structural Model

To prove the hypotheses, a calculation by the Structural Equation Modeling (SEM) analysis was conducted. Based on the CFA performed on every variable in the measurement model, the structural model to be subjected to a goodness of fit test is as follows (Figure 1). The test results showed that the three criteria in the majority condition were fit. From this result, it was concluded that the structural

model was in a good condition and was applicable for further analysis. From the testing on the measurement model and the structural model, the research model was found to fit with the empirical data to explain the existing phenomenon about the loyalty of e-commerce retail customers in Indonesia's fashion and beauty category.

- **Hypothesis 1 (H1): Digital technologies positively affect customer experience in the e-commerce retail environment**.
Hypothesis 1 in this research says that digital technologies influence customer experience. From the data processing, the CR value was found to be 9.034, and the p-value *** (smaller than 0.001) (see Table 2). The CR value was greater than 1.96 (9.034 > 1.96), and the p-value lower than 0.05 (*** < 0.05). This shows that digital technologies positively affected customer experience, leading to the acceptance of Hypothesis 1 (i.e., H0 was rejected). The effect was positive, meaning that the greater the digital technologies provided the better the customer experience. The estimated standardized regression weight of the effect of digital technologies on customer experience was 0.866 (Table 3).

Table 2: Regression Weight

	Estimate	S.E.	C.R.	P
DT → CX	0.842	0.093	9.034	***
DT → CE	0.717	0.193	3.718	***
CX → CE	0.069	0.185	0.374	0.708
CX → CL	0.481	0.100	4.836	***
CE → CL	0.460	0.091	5.083	***
CExFR → CL	-0.171	0.140	-1.218	0.223

Table 3: Standardized Regression Weight

	Estimate
DT --> CX	0.866
DT --> CE	0.671
CX --> CE	0.063
CX --> CL	0.483
CE --> CL	0.459
CExFR --> CL	-0.389

- **Hypothesis 2 (H2): Digital technologies positively affect customer engagement in the e-commerce retail environment.**
Hypothesis 2 in this research says that digital technologies influence customer engagement. From

the data processing, the CR value was found to be 3.718, and the p-value *** (smaller than 0.001) (see Table 2). The CR value was greater than 1.96 (9.034 > 1.96), and the p-value lower than 0.05 (*** < 0.05). This shows that digital technologies positively affected customer engagement, leading to the acceptance of Hypothesis 2 (i.e., H0 was rejected). The effect was positive, meaning that the greater the digital technologies provided the greater the customer engagement. The estimated standardized regression weight of the effect of digital technologies on customer engagement was 0.671 (Table 3).

- **Hypothesis 3 (H3): Customer experience positively affects customer engagement in the e-commerce retail environment.**

Hypothesis 3 in this research says that customer experience influences customer engagement. The CR value was found to be 0.374 from the data processing and the p-value 0.708 (see Table 2). The CR value was smaller than 1.96 (4.836 < 1.96), and the p-value higher than 0.05 (0.708 < 0.05). This shows that customer experience did not affect customer engagement, leading to the rejection of Hypothesis 3 (i.e., H0 was accepted). The estimated standardized regression weight of the effect of customer experience on customer engagement was 0.063 (Table 3).

- **Hypothesis 4 (H4): Customer experience positively affects customer loyalty in the e-commerce retail environment.**

Hypothesis 4 in this research says that customer experience influences customer loyalty. From the data processing, the CR value was found to be 4.836, and the p-value *** (smaller than 0.001) (see Table 2). The CR value was greater than 1.96 (4.836 > 1.96), and the p-value lower than 0.05 (*** < 0.05). This shows that customer experience positively affected customer loyalty, leading to the acceptance of Hypothesis 4 (i.e., H0 was rejected). The effect was positive, meaning that the better the customer experience the greater the customer loyalty. The estimated standardized regression weight of the effect of digital technologies on customer experience was 0.456 (Table 3).

- **Hypothesis 5 (H5): Customer engagement positively affects customer loyalty in the e-commerce retail environment**.

Hypothesis 5 in this research says that customer engagement influences customer loyalty. From the data processing, the CR value was found to be 5.083, and the p-value *** (smaller than 0.001) (see

Table 2). The CR value was greater than 1.96 (5.083 > 1.96), and the p-value lower than 0.05 (*** < 0.05). This shows that customer engagement positively affected customer experience, leading to the acceptance of Hypothesis 5 (i.e., H0 was rejected). The effect was positive, meaning that the greater the customer engagement the higher the customer loyalty. The estimated standardized regression weight of the effect of digital technologies on customer experience was 0.483 (Table 3).

- **Hypothesis 6 (H6): Firm reputation positively affects the relationship between customer engagement and customer loyalty in the e-commerce retail environment.**

The CR value was found to be -1.218 and the p-value 0.223 (see Table 2) from the data processing. The CR value was below than -1.96 (-1.218 < -1.96), and the p-value higher than 0.05 (0.233 < 0.05). This shows that firm reputation did not moderate the relationship between customer engagement and customer loyalty, leading to the rejection of Hypothesis 6 (i.e., H0 was accepted). The estimated standardized regression weight of firm reputation as moderator was -0.389 (Table 3).
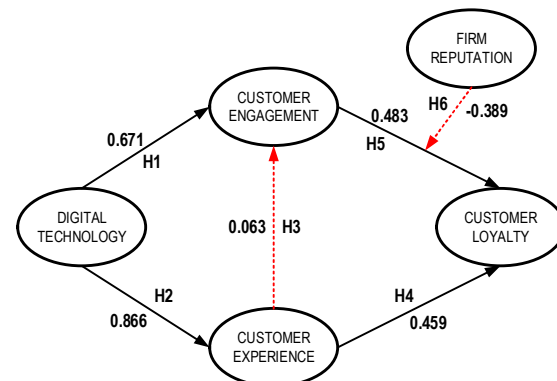

Figure 1: Research Finding

Table 4: Hypothesis Testing Results

Hypothesis	Parameter	Conclusion
H1	DT → CX	Supported
H2	DT → CE	Supported
H3	CX → CE	Not Supported
H4	CX → CL	Supported
H5	CE → CL	Supported
H6	CE x FR → CL	Not Supported

5. DISCUSSION

5.1 The Effect of Digital Technologies on Customer Experience

This research's data supported the hypothesis proposed which states that digital technologies positively affect customer experience. This result confirmed the result of Parise et al.'s study [16] that digital technology stimulation can improve customer experience through personalization and interactivity. Digital technologies provide a personal, immersive environment, allowing interactivity and information exchange between companies and customers. Customer's interaction with the company determines customer experience, and the success of retailer engagement with the customer is determined by the appropriate content provided, personalization, and emotional state.

The experience gained by customers through systems and technologies instigates cognitive judgment and directs the customer behaviors. Loyal customers are deeply concerned with websites' utility, making it important to employ varying strategies [36]. E-commerce websites will achieve success when they can meet customers' expectations and when customers derive satisfaction in the entire experience they gain during the use of service [37].

The increased rate of smart technology used by customers has been acknowledged to affect the customer shopping experience. With the increase in smartphone users, online shopping, and commitment to learning or using technologies now significantly drive customer participation in the retail setting. Technology adoption by retailers is required to improve customer experience, particularly for the retailers to attract new customers and retain existing ones [17]. Managing mobile apps for retail purposes involves effective planning and measurement in terms of experience delivered to customers [38].

Technology-based service delivery systems become an integral part of shopping, and, as a result, it is important to examine their impacts on customer experience [39]. Digital connectivity and mobility shape the e-commerce environment, especially with customers' ownership of digital devices. E-commerce companies must be able to bind customers by providing an interesting experience. Developing and managing online channels to invoke positive feelings and provide customers with interesting online experiences will help companies achieve a competitive advantage [40].

5.2 The Effect of Digital Technology on Customer Engagement

This research's data supported the hypothesis proposed which states that digital technologies positively affect customer engagement. This result confirmed the result of Chen et al.'s study [20] that information technology use strengthens customer engagement with an organization. The organization's support in the information technology system serves as a key element for it to achieve customer engagement. It also echoes the result of Choudhury & Harrigan's study [41] that CRM (customer relationship management) technology use has a positive relationship with customer engagement initiative.

Engagement is a strong indicator of technology dependence. The interactivity that arises allows users to understand technology features better and generate better performances through technologies. ICT (information and communication technology) is a medium for interactive communication between different customers and between customers and technology. Interactivity is a significant factor in engagement generation [42].

Empirical results indicate that aspects of technology appeals are positively related to user involvement, and eventually they leave an impact on engagement [43]. Effectiveness of application design attributes and application performance is the driver of user engagement. The application design attributes of attractiveness, performance, compatibility, and ease of use are important factors that drive engagement with mobile apps [18].

5.3 The Effect of Customer Experience on Customer Engagement

This research's data did not support the hypothesis proposed, in which case customer experience was not proven to influence customer engagement significantly. This research did not confirm the result of Mohd-Ramly & Omar's study [24] that there is a significant relationship between customer experience and customer engagement. Neither did it agree with the results of Zhang et al.'s [44] and Bilgihan et al.' [40] studies that engagement is a product of customer experience. According to Ahn & Back [21], customer experience can be either positive or negative. Customer feedback will be generated when the customer is satisfied with the service provided. The following are some indications that cause the relationship between customer experience and customer engagement to be insignificant.

The previous research by Mohd-Ramly & Omar [24] was conducted on holders of department

store membership cards in the Klang Valley area, Malaysia. Measurement was performed on the relationship between individual customer experience during department store visits and customer engagement. The other study by Ahn & Back [21] was conducted on the relationship between customer experience with integrated resorts during their stay at the resorts on customer engagement. From that research, it was found that customer experience affected customer engagement. Those research works were used to reference the proposal of the hypothesis on the relationship between customer experience and customer engagement in this research.

In the research conducted by Mohd-Ramly & Omar [24] and Ahn & Back [21], customers experienced direct interactions with the research objects, namely department stores and integrated resorts. Meanwhile, in this e-commerce retail research, customers interacted with the objects through mobile apps or websites. Hence, it is only presumable that the customer experience varied seasonally and pragmatically, and eventually influenced customer engagement.

The engagement strategies employed by organizations are an extension of the development of customer relationships. Customer engagement conceptualization contributes by re-emphasizing the importance of a broad understanding of individual interactions and relationships with companies [28]. Based on the research data from e-commerce retail respondents in the fashion and beauty category, most of the respondents made purchases fewer than three times per month (71%) and only started engagement in e-commerce transactions less than five years ago (75%). Seventy-one percent of the respondents made transactions via mobile apps. Most of the respondents were aged 17–45 years. It is presumable that the respondents were within the millennial generation age range and were used to using mobile apps. They made purchases fewer than three times a month have yet to influence the relationship between customer experience and customer engagement significantly.

5.4 The Effect of Customer Experience on Customer Loyalty

This research's data supported the hypothesis proposed which states that customer experience positively affects customer loyalty. This result confirmed the result of Klaus & Maklan's study [25] through its empirical evidence that customer experience has a significant positive effect on loyalty and word of mouth. Similarly, Cetin &

Dincer's [45] collected empirical proof that customer experience positively affects customer behavior. The experience gained by customers is essential in reinforcing customer loyalty and recommendation through word of mouth. Bilgihan et al. [40] added that customer experience outcomes are repurchase and positive word of mouth.

Experience is a critical factor in building loyalty to achieve business sustainability. Business performance is directly influenced by customer loyalty through purchase behavior [27]. In increasing business profits, e-commerce retail in the fashion and beauty category can focus on customer experience. Any factor related to the customer experience is important to driving loyalty and satisfaction [46]. Customer experience and loyalty have a stronger relationship than the relationship between customer satisfaction and loyalty. Customer experience may offer alternatives and allow a better ability to predict customer behavior. Customer experience measures customer constructs more holistically by considering the direct and indirect interactions with service providers [25].

5.5 The Effect of Customer Engagement on Customer Loyalty

This research's data supported the hypothesis proposed which states that customer engagement positively affects customer loyalty. This result confirmed the result of Hapsari et al.'s study [47] that customer engagement is an antecedent to customer loyalty, and so did it the results of So et al. [48] and Zheng et al. [49] that customer engagement is one of the factors that explain loyalty. Meanwhile, O'Brien et al. [50] identified a strong relationship between engagement and loyalty. Customer engagement has the potential of creating value for organizations through the increase in customer loyalty.

Thakur's research [38] collected empirical evidence of customer engagement's strong effect on customer behavior to repurchase. Customer engagement refers to the intensity of a customer's participation as an individual with a company's activity or offer. Customer engagement consists of cognitive, emotional, behavioral, and social elements. An organization's engagement strategies are the extension of the established relationships with both actual and prospective customers [28]. Customer engagement can capture customer behaviors that result from the customer's emotions and motivations [47]. Meanwhile, theoretically speaking, loyalty is positioned as the product of customer engagement [51].

5.6 The Role of Firm Reputation in Mediating the Relationship Between Customer Engagement and Customer Loyalty

This research's data did not support the hypothesis proposed, in which firm case reputation was not proven to moderate the relationship between customer engagement and customer loyalty. In the context of e-commerce retail customers in the fashion and beauty category, e-commerce retailers' reputation could not strengthen the relationship between customer engagement and customer loyalty.

This result confirmed Helm et al.'s study [52], which did not find any empirical evidence that could support firm reputation's role as mediator. That research measured the role of firm reputation (in the international consumer goods industry) as a moderator in the relationship between satisfaction and loyalty with consumers of detergent and cosmetic products in Germany serving as objects. Another study by Beckers et al. [32] found that well-reputed companies benefit less from customer engagement stimulation in building relationships with customers. The following are some indications that cause a firm reputation to be unable to moderate the relationship between customer engagement and customer loyalty.

In this research, most of the respondents (91%) conducted transactions via Lazada (34%), Blibli (32%), and Zalora (25%), which were established and introduced to operations in Indonesia in 2011–2012 (i.e., they have been in operation for 8–9 years to date). Most of the respondents have been engaging in e-commerce transactions for 2–4 years (50%), and some others less than 2 years (25%). In other words, a total of 75% of the respondents have been making transactions for less than 5 years. This situation illustrates that when the respondents made their first transactions the e-commerce retailers had been in operation for approximately 3–5 years. It is presumed that at that time the retailers had established good reputations as marked by most of the respondents transacting via major e-commerce retailers. Therefore, firm reputation was unable to moderate the relationship between customer engagement and customer loyalty.

The research conducted has implications for the development of management science, especially the role of customer experience and customer engagement as customer behavior in shaping customer loyalty. In detail, the resulting implications can be described as follows: First, the findings from the results of the first and second hypotheses prove that there is a significant relationship between digital technology and customer experience and a significant relationship between digital technology and customer engagement. In this study, it was found that the dimensions of the digital technology used, namely interactive, personalization, and ease of use, proved valid and reliable so that the dimensions could be used for further research. The influence of digital technology is greater on the customer experience than the influence of digital technology on customer engagement. So, this makes digital technology can be used well to build customer experiences. Opportunities in future research can consider other dimensions of digital technology that can affect customer experience and customer engagement.

Second, the findings from the results of the third hypothesis that do not supported for proving a significant relationship between customer experience and customer engagement. The results of this study indicate that the relationship between customer experience and customer engagement can occur, but the effect is not significant. So that it opens opportunities for further research to re-examine the relationship between customer experience and customer engagement using different e-commerce dimensions or categories (non-retail).

Third, the findings from the results of the fourth and fifth hypotheses prove that there is a significant relationship between customer engagement and customer loyalty, and a significant relationship between customer experience and customer loyalty. In this study, it was found that customer engagement has a greater value than customer experience. In this research, the dimensions of customer engagement, namely cognitive, emotional, and behavioral, are proven valid and reliable, so they can be used for further research. In customer experience, the sensorial and pragmatic dimensions are proven to be valid and reliable, while the relational dimensions are proven invalid and reliable to be used. With the findings, customer engagement and customer experience can be used to determine customer loyalty through repurchase intention and word of mouth. Future research can be done by looking at other dimensions of customer engagement and customer experience.

Fourth, the findings from the results of the sixth hypothesis that do not supported for proving that the firm reputation can be a moderator between customer engagement and customer loyalty. The results of this study indicate that the firm reputation has an influence on customer loyalty but cannot

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strengthen the relationship between customer engagement and customer loyalty. The findings in this study still open opportunities for further research, how the firm reputation as a moderator can strengthen a relationship related to customer behavior.

6. CONCLUSSION

From the research results, a customer loyalty model with the influence of customer engagement and customer experience can be built. Digital technologies as company resources can create interactivity, personalization, and ease of use and can be used maximally to support customer engagement building cognitively, emotionally, and behaviorally. They can also support the creation of customer experience sensorial and pragmatically. Retailers may consider customer experience and customer engagement in establishing relationships with customers. Retailers need to implement the experience space concept that focuses on customer engagement and personal interactions, allowing customers to play an active role in producing a unique customer experience, leading on customer engagement with them [24]. The customer engagement established, and customer experience resulted will build customer loyalty through repurchase intention and word of mouth. Customer loyalty will directly impact firm performance and business sustainability in the e-commerce retail in Indonesia. Firm reputation was not proven to strengthen the relationship between customer engagement and customer loyalty. Continuous improvement of firm reputation is recommended to be performed as firm reputation directly affects customer loyalty. The results obtained have not been able to support the results of previous research, the firm reputation strengthens the relationship between innovation services and cross-purchasing desire [34]. The results of this study confirm the previous study conducted by Helm, et al. [52], that there is no empirical evidence that supports the company's reputation as a moderator. This study also supports previous research that company reputation has a positive relationship and influence on customer loyalty [35].

7. LIMITATION

Further research needs to be done on the retail e-commerce environment with other product categories, apart from fashion and beauty. It can be seen whether there are differences in e-commerce customer behavior based on the product purchased. Conducting further research to determine the factors that are antecedent to customer experience and customer engagement besides digital technology, especially to determine the characteristics and behavior of Indonesia's e-commerce customers.

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