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How Do Value Co-Creation and E-Engagement Enhance E-Commerce Consumer Repurchase Intention?

An Empirical Analysis

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ABSTRACT

This study develops an integrated model to investigate how value co-creation, driven by positively valanced e-engagement, enhances repurchase intention among e-commence consumers. Applying the tenets of UTAUT, this study also examines the moderating role of technology adoption in the association between e-engagement and value co-creation in the e-commerce context. Data were collected via 411 surveys completed by e-commerce consumers in India. Data analysis was done using PLS structural equation modelling. Results show that value co-creation, driven by positively valanced e-engagement, enhances repurchase intention among e-commerce consumers, while technology adoption moderates the association between positively valanced e-engagement and value co-creation. The findings also reveal that consumption values, such as utilitarian and hedonic values, mediate the effects of value co-creation on repurchase intention among e-commerce consumers.

KEYWORDS

Consumption Values, E-Commerce, E-Engagement, Technology Adoption, Value Co-Creation

1. INTRODUCTION

Advancement of Information and Communication Technology (ICT) and the significant growth of cell phone users have boosted the growth of e-commerce around the world (Thompson et al., 2019; Saridakis et al., 2017). E-commerce refers to the usage of communication and electronic technologies for the internet-based trading of items (goods and services) (Jahongir and Shin, 2014). E-commerce, in its early years, was primarily confined to the developed nations; however, due to the high rate of internet penetration in recent years, it has pervaded the developing nations as well (Agarwal and Wu, 2018). According to an estimate by Forrester Research, e-commerce will contribute to about 17% of total retail sales by 2022 (Forrester report, 2018). Interestingly, between 2012 and 2017, global

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e-commerce players, grew their gross sales at a staggering rate of 34% a year (Mckinsey & Company, 2019). Even within the Indian context, it is estimated that e-commerce industry will achieve the mark of US$200 billion by 2026 (ibef report, 2020). These statistics indicate the ongoing 'growth' trajectory of the e-commerce industry around the world (Mashhadi and Behdad, 2018).

E-commerce provides an economical and efficient way for producers and retailers to sell their products and reach their target consumers (Chiu and Cho, 2019). On the other side, consumers are also provided with a myriad of options and deals to choose from (Devaraj et al., 2002). Evidently, competition in the e-commerce space has become stronger and huge investments are being made in this space by large players (Chiu and Cho, 2019). In such a scenario, it is important for retailers and manufacturers to harvest positive customer responses, such as repurchase intention, for their respective brands in the e-commerce space.

Accordingly, one effective strategy that may contribute to harvesting positive responses of e-commerce consumers is *value co-creation*, an interactive process of mutually co-creating value among various actors (Vargo and Lusch, 2016; Gronroos, 2008). In the process of value co-creation, customers are considered to be co-creators of value who proactively give ideas to companies (Saha et al., 2019; Witell et al., 2014; McColl-Kennedy et al., 2012). Hence, customers involved in this process stay loyal to their co-creating partner companies and share with them any inherent risks associated with the process (Saha and Goyal, 2019; Cossio-Silva et al., 2016; Prahalad and Ramaswamy, 2004). However, value co-creation is unlikely to enhance consumers' repurchase intention unless they (consumers) are positively engaged and emotionally committed to the process. This indicates that positively-valanced e-engagement would eventually enhance consumers' intention to repurchase from an e-commerce company.

However, the extant literature has a gap, in that it rarely demonstrates the impact of value co-creation, driven by positively-valenced e-engagement, in enhancing repurchase intention among e-commerce consumers. Moreover, though some studies acknowledge the importance of technological platforms (such as, *virtual communities*, *social media* or even *personalised platforms built by the service providing company*) for facilitating interactions between companies and consumers during the value co-creation process (Breidbach and Maglio, 2016; Zwass, 2010), yet research on the impact of consumers' technological adoption in a value co-creation process is lagging behind. Not only does the absence of such a study impede the effective technological adoption for facilitating value co-creation in the e-commerce space, but it also limits the usage of value co-creation, driven by positively-valenced e-engagement, in enhancing repurchase intention among e-commerce consumers.

In this backdrop, the present study aims to examine how value co-creation, driven by positively-valanced e-engagement, enhances repurchase intention among e-commerce consumers. Our study also evaluates the moderating role of technology adoption in the association between positively-valanced e-engagement and value co-creation in the e-commerce context. An integrated conceptual framework is presented for these purposes and tested empirically.

This study is academically and practically significant. From an academic perspective, first, it proposes a complex and integrated mechanism involving mediation and moderation effects to show how value co-creation affects repurchase intention among e-commerce consumers. While the extant literature has assessed the association between customer engagement and value co-creation in diverse contexts (Merrilees, 2016; Zhang et al., 2017), our study advances the literature by studying the impact of value co-creation, driven by positively valanced e-engagement, on consumers' repurchase intentions; considering the moderating role of technology adoption in the e-commerce context.

Second, our study extends the application of Unified Theory of Acceptance and Use of Technology (UTAUT) regarding e-engagement and value co-creation in the e-commerce space. While extant literature has applied various theories in the context of e-engagement and value co-creation, our study is probably the first to apply UTAUT, a prominent theory from the Information systems (IS) literature, to advance the academic literature of both e-engagement and value co-creation.

Finally, from the marketer's perspective, the study's findings will benefit marketers and retailers in the e-commerce industry in developing effective marketing strategies to enhance repurchase intention, while focussing on positively-valanced e-engagement and value co-creation approaches. The findings will also benefit them in leveraging the use of technology to better engage their consumers in the process of value co-creation.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Value Co-creation and its Effects on Repurchase Intention

The concept of value co-creation can be attributed to the theory of service-dominant (S-D) logic, which suggests consumers to be value co-creators (Vargo and Lusch, 2004; Payne et al., 2008). As such, Ranjan and Read (2016) define value co-creation as a process where "*consumers assume an active role and create value together with the firm*" (p. 291). Accordingly, in the process of value co-creation, the consumer shifts from being a passive recipient of value to be an active player in the process (Payne et al., 2009). Research suggests that a successful value co-creation initiative leads to a greater sense of satisfaction (Cossio-Silva et al., 2016; Luo et al., 2015; Vega-Vazquez et al., 2013; Grissemann and Stokburger-Sauer, 2012) which in turn, lead to the rise of positive behavioural responses, such as repurchase intention (Park and Ha, 2016; See-To and Ho, 2014). For the e-commerce companies, such behavioural responses from their existing consumers are highly desirable given the intense competition that these companies face in this space. Since the cost of acquiring new customers far exceeds the costs of retaining existing ones for these e-commerce companies (Zhang et al., 2011), repurchase intention of the existing customers is of vital to the growth of the e-commerce firms.

Repurchase intention refers to a consumer's decision to purchase again a designated offering from the same company (Hellier et al., 2003). The repurchase intention for a given offering primarily depends upon the level of trust that consumers have developed over the company (Chiu et al., 2009). One effective way to enhance trust among the e-commerce consumers is enabling and enhancing their involvement in the value co-creation process (See-To and Ho, 2014; Randall et al., 2011). Thus, the involvement of consumers in a value co-creation initiative instils a greater level of trust among them, which subsequently may lead to their repurchase intention. Hence, we hypothesise the following:

H_1: *Value co-creation enhances repurchase intention among e-commerce consumers.*

2.2 The Effects of Consumption Values

Value created during a co-creation process can either be utilitarian or hedonic (Babin et al., 1994; Lim and Ang, 2008). Utilitarian values focus on the functional and value-for-money aspects of consumption that are perceived by consumers as performance-oriented and non-emotional (Jones et al., 2006; Shin et al., 2019). On the other side, hedonic values refer to the emotional and affective aspects of consumption related to the experiential responses of consumers (Cao et al., 2019; Babin et al., 2005). Hedonic values are about fulfilling consumers' desire for excitement, pleasure and fun during a buying or consumption experience (Batra & Ahtola, 1990).

Both utilitarian and hedonic values positively influence customer satisfaction with retailers (Jones et al., 2016; Overby and Lee, 2006). A high level of satisfaction, in turn, influences e-commerce consumers' repurchase intention (Yi and La, 2004; Chiu and Cho, 2019). That is, utilitarian and hedonic values generated from value co-creation process enhance the satisfaction of e-commerce consumers, which in turn lead to their repurchase intention. This indicates that customer values, such as utilitarian and hedonic values, may mediate the association between value co-creation and repurchase intention. Hence, we suggest the following hypotheses:

H_{2a}: Utilitarian values mediate the association between value co-creation and repurchase intention.

H_{2b}: Hedonic values mediate the association between value co-creation and repurchase intention.

2.3 Positively-valanced e-Engagement

Customer engagement (CE), as a concept, has been researched in detail in the literature. Brodie et al. (2011; p.9) define CE as "a *psychological state* that occurs by virtue of interactive customer experiences with a focal agent/object in focal service relationships." Hollebeek and Chen (2014) conceptualises CE as positively valanced and negatively valanced, where consumers' positively valanced engagement generates an 'attraction force' towards an object, while consumers' negatively valanced engagement generates a 'repulsion force' towards the object. Dolan et al., (2016) suggest that positively-valanced CE includes '*consumption*', '*positive contribution*' and '*co-creation*', while negatively valanced CE includes '*detachment*', '*negative contribution*' and '*co-destruction*'. Accordingly, we investigate the concept of positively-valenced e-engagement in our study. E-engagement refers to engagement by consumers with a firm in an electronic/digital medium. Some exemplary activities under positively-valanced e-engagement of e-commerce consumers include creating content on social media in support of the company; providing new product ideas to the company; and sharing expertise, skills, knowledge, and resources with the company (Roy et al., 2018; Jaakkola and Alexander, 2014). These activities require time and effort from consumers, and are aimed at creating mutual value for both sides, i.e. companies and customers (Van Doorn et al., 2010; Roy et al., 2018; Jaakkola and Alexander, 2014; Storbacka et al., 2016). These positively valanced e-engagement activities carried out by e-commerce consumers make them active contributors to business processes, and hence they are considered co-creators of value. In essence, positively-valanced e-engagement activities undertaken by e-commerce consumers make them a key part of the process of value creation. The above discussion indicates that positively-valanced e-engagement might positively impact the process of value co-creation for e-commerce consumers. That is, positively-valanced e-engagement might be an antecedent to value co-creation.

H_3: Positively-valanced e-engagement enhances value co-creation.

2.4 Moderating Role of Technology Adoption

Technology adoption may affect the association between positively-valanced e-engagement and value co-creation in the e-commerce context. Technology adoption is one of the cornerstones for the attainment of any value co-creation initiative (Ramaswamy, 2008; See-To and Ho, 2014). Technology enables companies to interact with their co-creating consumers, enhancing customers' contributions to the value co-creation process (Neuhofer, 2016). However, though consumers are interested in co-creating, they may sometimes be reluctant to adopt a technology that the company uses to the value co-creation process, resulting in their inability to add to the value co-creation process (Straub, 2009). If they can successfully adopt the technology, it will enhance their efficacy in the value co-creation process (See-To and Ho, 2014). The preceding discussion indicates that customers' contribution to the value co-creation process vary depending on their level of technology adoption.

On the other side, positively-valanced e-engagement with a company would also vary depending on customer technology adoption (O'Brien and Toms, 2008; Chan et al., 2014). Since companies mostly use technology to interact and positively engage with their consumers, a high rate of technology adoption would enhance positively-valanced e-engagement with the company. On the contrary, customers' low technology adoption would limit their positive engagement because of an inefficient feedback loop and a lack of efficient information transfer between the company and the customers. This indicates that positively-valanced e-engagement also tends to vary depending on the customers' level of technology adoption. As both positively-valanced e-engagement and value co-creation tend to vary depending on customers' technology adoption, it is plausible to assume that technology adoption moderates the association between positively-valanced e-engagement and value co-creation.

The moderating role technology adoption in the relationship between positively-valanced e-engagement and value co-creation can be explained with the underpinnings of Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). According to this theory '*performance expectancy*', '*effort expectancy*' and '*social influence*' are the factors that would directly influence consumers' intention to use a given technology, whereas '*facilitating conditions*' would directly affect consumers' usage behaviour of the technology (Venkatesh et al., 2016). Specifically, these four factors serve as antecedents to consumers' behavioural intention to adopt and use any new technology presented to them (Nysveen and Pedersen, 2016).

Performance expectancy refers to consumer's expectation of positive impact of given technology on their job performance (Chua et. al, 2018; Lian and Yen, 2014). That is, consumers would intend to adopt a technology only if they expect that their performance will enhance with the use of particular technology. In the e-commerce context, positively engaged customers will intend to adopt a technology only if they expect that the technology introduced to assist them enhances their contribution to the process of value co-creation.

Correspondingly, effort expectancy depicts how easy it is to use a particular technology (Chua et. al, 2018; Oliveira et al., 2014). That is, consumers' intention to embrace a given technology would improve based on their perception of ease use of technology. In e-commerce context, positively engaged customers will intend to adopt a technology to contribute to the process of co-creation, if they believe that the technology offered by the service providing e-commerce firm is user-friendly and readily accessible.

Next, social influence denotes the degree to which consumers believe that people who are important to them expect them to use a given technology (Chua et. al, 2018; Miltgen et al., 2013). That is, consumers would intend to adopt a given technology if they feel that members of their peer group would approve and support their adoption of the technology. In the e-commerce context, positively engaged customers will intend to adopt a technology offered by the service providing firm if they perceive an enhanced social influence (approval from the peers) in lieu of their use of the technology.

Finally, facilitating conditions is the consumers' belief that the firm specific technical assistance provided by a company will support them (consumers) while using the technology (Kim et al., 2017). That is, consumers will use a technology if they believe that the service providing company will dedicatedly support and help them in the use of the technology. In the e-commerce context, positively engaged customers will use a technology for enhancing their contribution to the process of co-creation if they believe that the service providing e-commerce firm will provide them the required support and assistance while using the technology (Kallweit et al., 2014).

The above discussion suggests that each of the antecedents of the UTAUT theory would support the e-commerce consumers' adoption of technology for enhancing their contribution to the co-creation process. Hence, based on this discussion supported by UTAUT, it is plausible to assume that technology adoption moderates the association between positively-valanced e-engagement and value co-creation, and accordingly we hypothesise the following:

***H_4**: Technology adoption moderates the association between positively-valanced e-engagement and value co-creation; particularly, the influence of positively-valanced e-engagement on value co-creation will be stronger at the high technology adoption level, rather than the low technology adoption level.*

2.5 Antecedents of Positively-valanced e-Engagement

Studies have suggested several antecedents to positively-valanced e-engagement (Van Doorn et al., 2010; Pansari and Kumar, 2017; Chan et al., 2014). Most have not been empirically tested. We propose two such antecedents to positively-valanced e-engagement that would be empirically tested

in this study: *Affective customer commitment* and *corporate image*. A discussion of each of these antecedents follows.

Affective customer commitment can be explained as a consumer's emotional connection with a company (Fazal-e-Hasan et al., 2017; Ng et al., 2017). When buyers have a nice experience and positive emotions about a service provider, they tend to be actively engaged with the company (Choi and Lotz, 2016). That is, customer affective commitment to a company motivates them to be involved in positively-valanced e-engagement (Bowden, 2009; Sashi, 2012). Hence, we hypothesise the following:

H_5: *Customer affective commitment enhances positively-valanced e-engagement.*

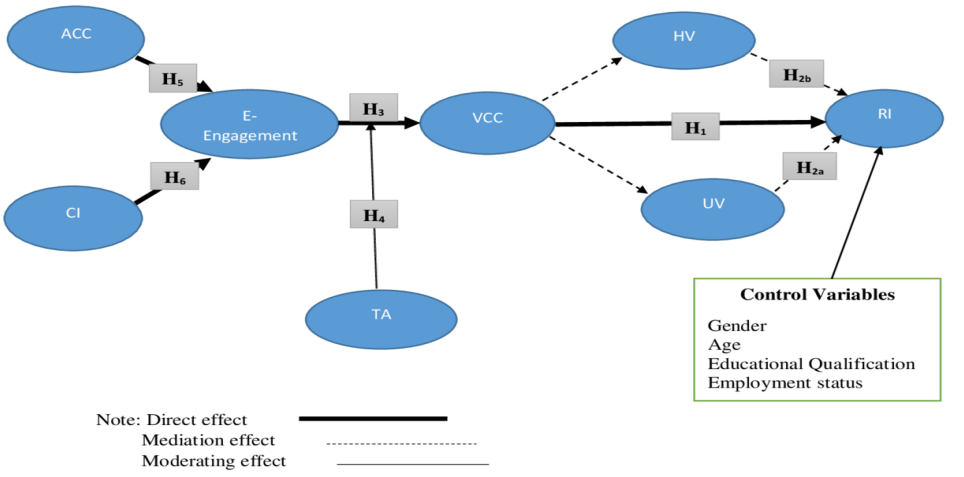
Corporate image refers to the various sets of associations that form the perception of a firm in consumers' minds (Barich and Kotler, 1991). Various sets of attributes and benefits pertaining to a firm essentially distinguish it from other firms and enable customers to form an image of the firm (Webster and Keller, 2004). Accordingly, a firm with higher sets of positive attributes and benefits will have a favourable and strong corporate image (Batra and Homer, 2004; Alwi and Kitchen, 2014). When customers perceive that a firm has a higher and favourable image, they are more likely to positively engage with it (Islam and Rahman, 2016). That is, stronger and favourable corporate image is likely to inspire engagement tendencies among customers. On the contrary, if customers find that a firm has a negative corporate image or is less reputable in society, they will be unlikely to positively engage with the company. Based on this, following hypothesis was proposed:

H_6: *Corporate image enhances positively-valanced e-engagement.*

2.6 Conceptual Model

Based on the extensive literature review and hypotheses, a conceptual framework (Figure 1) is being proposed.

Figure 1. Conceptual Framework



Note: ACC: Affective Customer Commitment; CI: Corporate Image; VCC: Value Co-creation; HV: Hedonic Value; UV: Utilitarian Value; RI: Repurchase Intention; TA: Technology Adoption

3. RESEARCH METHOD

3.1 Sample and Survey Administration

This study was carried out in the Indian e-commerce context. Since India stands second in the world in terms of internet penetration (TRAI, July, 2017), there remains an enormous growth potential for the e-commerce sector in India. Thus, the Indian e-commerce environment looks like a perfect situation for investigating the impact of VCC on repurchase intention among e-commerce consumers. Accordingly, responses for this study were collected from the regular e-commerce consumers, i.e. online shoppers in India.

To ensure that data collection was done from regular online shoppers, we asked the following qualifying questions: "Do you shop online?" and "During the last six months, how many times did you shop online?" Only respondents who answered "yes" to the first qualifying question and had shopped online more than twice during the last six months were allowed to complete the remaining part of the survey. The frequency of purchase via a given channel indicates consumers' experience in using the channel (Ashley and Leonard, 2009). A pilot study with online retail experts showed that consumers shopping at least twice during a six-month period through online channel are considered regular online customers. When conducting the survey, participants were suggested to respond the questions based on their recent experiences with any one online retailer (Cretu & Brodie, 2007). More specifically, following retrospective experience in survey administration method, respondents were first asked to explain their experience with the retailer followed by the survey questions (Bougie et al., 2003).

We used an online structured questionnaire for data collection. Amazon Mechanical Turk (Mturk) was used to administer the survey. This platform is used by various researchers for the purpose of data collection (Sands et. al, 2019; Guttentag et al., 2018; Shank, 2016). We use Qualtrics platform for the development of online survey questionnaire. This was distributed through MTurk, where participants responded to the survey in exchange of a small incentive. The Mturk platform is highly beneficial for data collection given its ability to attract the respondents with geographical diversity (Buhrmester et al., 2011), its cost effectiveness, and, more importantly, its ability to efficiently access a targeted sample of respondents (Casler et al., 2013). To reduce any potential misuse of the MTurk tool, we incorporated attention check questions within our survey (Paolacci et al., 2010). Accordingly, the surveys of 48 respondents that failed the attention check were deleted, 411 responses were considered in our final data analysis. The demographic profile of respondents is shown in Table 1.

3.2 Measures and Instrument Development

The survey items have been obtained from the existing validated scales, but we ensured that scales suit the context of our study. The final instrument has been tested for content validity by two professors from the field of marketing and two senior marketing professionals from the e-commerce industry. The questionnaire comprises of three sections. The questions in the first section are the qualifying questions, the next section contains items measuring constructs of the study, and the final section contains questions pertaining to respondents' demographic profile.

The measures for positively-valanced e-engagement was operationalised using 10 items obtained from Hollebeek et al. (2014). Value co-creation was operationalised using 29 items adapted from Yi and Gong (2013), whereas utilitarian values and hedonic values were operationalised using four items each adapted from Overby and Lee (2006). Corporate image was operationalised using six items taken from Cretu and Brodie (2007), while seven items adapted from Parasuraman (2000) were used to measure technology adoption. Three items measuring repurchase intention have been taken from Park and Ha (2016), while affective customer commitment was measured using three items adapted from Shukla et al. (2016). Consumer demographics, such as education, employment status, age and gender may influence online consumers' repurchase intention; hence, we have considered them as control variables for our study. Accordingly, the data pertaining to these variables have also been collected through the survey. All the constructs used a seven-point Likert's type measurement scale

Table 1. Demographic profiles of the respondents (N=411)

Category	N	%
Gender		
Male	215	52.3
Female	196	47.7
Age		
18-30	191	46.5
31-45	151	36.7
46-60	56	13.6
60 above	13	3.2
Secondary or below Qualification	N/A	N/A
Higher Secondary	9	2.2
Bachelor's Degree	312	75.9
Postgraduate Degree or higher	90	21.9
Occupation		
Unemployed	7	1.7
Government or Semi-government Sector	60	14.6
Private Sector	192	46.7
Self-employment	152	37

(i.e. 1 = strongly disagree; 7 = strongly agree). Before undertaking the actual survey administration, the survey instrument was pre-tested survey instrument with the responses from 20 online shoppers. There were certain minor changes made based on the results from the pre-test.

3.3 Common Method Bias

There might be a possibility of a common method bias (CMB) since data for both dependent and independent variables was collected from the same respondents. We, therefore, checked for CMB using both procedural and statistical methods. In terms of statistical methods, a marker variable was included that did not have any theoretical relationship with other variables in the survey (Malhotra et al., 2006). The marker variable was found to have a low correlation with respect to the other constructs of the study. Also, after the adjusting for CMB, the correlation matrix between the marker variable and the other variables was found to be significant. Hence, the results do not have the effect of CMB (Lindell and Whitney, 2001). Second, the effect of CMB was checked using Harman one-factor test (Podsakoff and Organ, 1986). Factor analysis of the seven main variables resulted in seven factors with 72.16% total variance, in which factor one accounts 18.75% of the total variance. Since factor one did not explain the majority of the variance and multiple factors (rather than just one factor) resulted from our analysis, we can infer that CMB would not possibly be a concern in the data. For procedural method, respondents were informed that the questions in survey instrument does not have any specific correct or incorrect answer, and they were also ensured of their anonymity (Podsakoff et al., 2003).

4. ANALYSIS

To test the proposed hypotheses, we used partial least square (PLS), a variance based structural equation modelling (SEM) method. The PLS technique is considered to be suitable due to following reasons: (1) given the types of relationships in the hypotheses (mediation, moderation, and direct), our research model is quite complex; (2) our study contains both reflective and formative constructs; (3) these constructs produce consistent parameter estimates (Chin et al., 2003). Accordingly, we have

used Smart PLS 3.0 software for the analysis (Ringle et al., 2014). We ran the PLS model in two stages: structural model (inner model) and measurement model (outer model).

4.1 Measurement Model Assessment

The proposed measurement model of our study consists of 17 first-order reflective factors (corporate image, affective commitment, technology adoption, repurchase intention, utilitarian values, hedonic values, the three dimensions of e-engagement, and the eight dimensions of value co-creation). The factor loadings of all the constructs have loading values above 0.5, and the Average Variance Extracted (AVE) of all the constructs are more than 0.5 as well (Table 2), confirmed the convergent validity of the measures (Hair Jr, Babin, & Anderson, 2010). Further, as shown in Table 2, the Cronbach's alpha coefficient values for all constructs are higher than 0.7; this ensures the reliability of the measures (Hair Jr et al., 2010). The model fit indices are not presented since researchers have been recommended not to report model fit in PLS-SEM (Hair et al. 2017).

Discriminant validity of the measures was assessed using the method suggested by Fornell and Larcker (1981). Accordingly, the square root of AVE values for all constructs in the upper diagonal are more than the corresponding off-diagonal correlation coefficients (Table 3); this confirms the discriminant validity of the measures (Fornell & Larcker, 1981). Also, the heterotrait–monotrait (HTMT) values are below the threshold value of 0.85 (Table 4), thus indicating discriminant validity among the reflective constructs (Henseler, Ringle, & Sarstedt, 2015). The correlation regressions (Table 3) range from 0.22 to 0.86, which are below 0.9; this indicates that there is no multicollinearity among the constructs used in this study (Tabachnick and Fidell, 2012).

Our study considered e-engagement, with its three dimensions, and value co-creation, with its eight dimensions, as reflective-formative second-order constructs. Formative constructs require examining both the Variance Inflation Factors (VIF) and the significance of the weights, where weights are not required to exceed a specific benchmark (Diamantopoulos & Winklhofer, 2001). Further, according to the collinearity test results, the VIF values of the items measuring the three dimensions of e-engagement and the eight dimensions of value co-creation are below the 3.3 standard cut-off (Roberts & Thatcher, 2009).

4.2 Hypothesis Testing

The proposed hypotheses are assessed considering the magnitude and sign of the path coefficients. For assessing the path coefficients' statistical significance, bootstrapping with 5000 resamples was run, that produced corresponding standard errors and t-statistics. All VIF values of the proposed model were below 5.0 (cut-off value), thus indicating the absence of multicollinearity in the model.

The results of the proposed model (see Table 5) show that value co-creation ($\beta = 0.321$, $p<0.001$) has a significant positive influence on repurchase intention, supporting $\mathbf{H_1}$. Further, CE ($\beta=0.343$, $p<0.001$) significantly increases value co-creation, hence $\mathbf{H_3}$ was also supported. Of the proposed antecedents of e-engagement, only corporate image ($\beta=.549$, $p<0.001$) significantly and positively influences positively-valanced e-engagement, while affective commitment ($\beta= 0.07$, $p<0.001$) does not, hence $\mathbf{H_6}$ is supported and $\mathbf{H_5}$ is not.

We then tested for the proposed mediation effects in the model. For mediation conditions are met when a significant relationship exists between the mediator and the predictor, and between the outcome variable and the mediator variable (Schneider et al., 2005). As presented in Table 5, the effects of value co-creation on utilitarian value ($\beta=.0.686$, $p<0.001$) and on hedonic value ($\beta=.604$, $p<0.001$) as well as the effects of both utilitarian value ($\beta=.392$, $p<0.001$) and hedonic value ($\beta=.151$, $p<0.01$) on repurchase intention are significant; hence, both conditions are satisfied.

This study used two methods to test for mediation effects of both utilitarian value and hedonic value on the association between value co-creation and repurchase intention (Hair et al., 2013). Accordingly, the Barron and Kenny's approach and VAF were run to test the mediation hypotheses. To facilitate the Barron and Kenny approach, four additional models were run: two models were

Table 2. Summary of the Measurement Model

Construct	Statements	VIF	Weight	FL	α	CR	AVE
Corporate Image	CI 1			0.63			
	CI 2			0.75			
	CI 3			0.70			
	CI 4			0.71	0.801	0.86	0.51
	CI 5			0.76			
	CI 6			0.72			
Affective commitment	COMM 1			0.54			
	COMM 2			0.85	0.731	0.77	0.54
	COMM 3			0.78			
Technology Adoption	TECH 1			0.70			
	TECH 2			0.53			
	TECH 3			0.72	0.812	0.86	0.51
	TECH 4			0.69			
	TECH 5			0.72			
	TECH 6			0.74			
	TECH 7			0.68			
Repurchase Intention	RP 1			0.78			
	RP 2			0.82	0.725	0.84	0.64
	RP 3			0.81			
Utilitarian Values	UTIL 1			0.68			
	UTIL 2			0.75			
	UTIL 3			0.72	0.719	0.81	0.52
	UTIL 4			0.73			
Hedonic Values	HED 1			0.72			
	HED 2			0.72	0.725	0.79	0.50
	HED 3			0.74			
	HED 4			0.60			
E-Engagement Cognitive Processing	CE 1	2.092	0.35	0.82	0.728	0.85	0.65
	CE 2			0.78			
	CE 3			0.81			
E-Engagement Affection	CE 4	2.678	0.443	0.74	0.754	0.84	0.58
	CE 5			0.78			
	CE 6			0.74			
	CE 7			0.77			
E-Engagement Activation	CE 8	2.481	0.341	0.76	0.7677	0.82	0.61
	CE 9			0.78			
	CE 10			0.80			

Table 3. Descriptive statistics and correlation matrix for the study constructs

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Cog	5.42	0.93	0.81[a]																
2. Aff	5.45	0.91	0.63**	0.76[a]															
3. Act	5.45	0.89	0.62**	0.65**	0.78[a]														
4. Infoseek	5.33	1.04	0.44**	0.46**	0.41**	0.83[a]													
5. Infoshare	5.43	0.91	0.49**	0.47**	0.5**	0.62**	0.76[a]												
6. Resp	5.39	0.89	0.47**	0.52**	0.49**	0.57**	0.72**	0.77[a]											
7. Personal	6.44	1.01	0.44**	0.42**	0.5**	0.62**	0.65**	0.66**	0.71[a]										
8. Feedback	5.36	0.96	0.4**	0.46**	0.42**	0.56**	0.6**	0.63**	0.62**	0.77[a]									
9. Advocacy	5.26	1.11	0.35**	0.52**	0.38**	0.61**	0.62**	0.61**	0.67**	0.59**	0.86[a]								
10. Helping	5.40	0.86	0.46**	0.44**	0.48**	0.64**	0.69**	0.7**	0.66**	0.61**	0.67**	0.76[a]							
11.Tolerance	5.36	0.90	0.43**	0.41**	0.37**	0.64**	0.56**	0.66**	0.65**	0.61**	0.65**	0.64**	0.77[a]						
12.PWOM	5.36	0.89	0.47**	0.48**	0.43**	0.37**	0.45**	0.45**	0.49*	0.49**	0.53**	0.46**	0.37**	0.8[a]					
13.Affec_comm	5.24	0.92	0.25**	0.22**	0.28**	0.43**	0.45**	0.46**	0.39**	0.36**	0.34**	0.47**	0.49**	0.38**	0.73[a]				
14.Util	5.48	0.85	0.44**	0.48**	0.41**	0.42**	0.53**	0.54**	0.61**	0.55**	0.55**	0.54**	0.43**	0.65**	0.43**	0.72[a]			
15.Hed	5.26	0.85	0.43**	0.49**	0.49**	0.43**	0.53**	0.49**	0.48**	0.41**	0.36**	0.52**	0.47**	0.38**	0.54**	0.48**	0.71[a]		
16.CI	6.65	0.92	0.57**	0.56**	0.55**	0.41**	0.54**	0.49**	0.51**	0.53**	0.53**	0.52**	0.43**	0.48**	0.42**	0.54**	0.49**	0.71[a]	
17.Tech_adop	5.45	0.82	0.42**	0.41**	0.44**	0.45**	0.55**	0.48**	0.48**	0.52**	0.44**	0.53**	0.54**	0.51**	0.35**	0.48**	0.52**	0.51**	0.72[a]

Notes: ** Correlation is significant at $p<0.01$

Table 4. Results of heterotrait-monotrait ratio (HTMT) analysis

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Activation																
2. Advocacy	0.56															
3. Affection	0.71	0.58														
4. Affective commitment	0.52	0.50	0.53													
5. Corporate Image	0.63	0.69	0.63	0.56												
6. Cognitive Processing	0.73	0.51	0.77	0.63	0.67											
7. Feedback	0.66	0.71	0.64	0.61	0.69	0.63										
8. Hedonic	0.68	0.55	0.69	0.60	0.61	0.61	0.62									
9. Helping	0.67	0.75	0.63	0.55	0.61	0.65	0.72	0.67								
10. Information seeking	0.63	0.74	0.61	0.58	0.64	0.67	0.75	0.62	0.76							
11. Information sharing	0.63	0.72	0.59	0.62	0.66	0.69	0.75	0.69	0.77	0.71						
12. Personal Interaction	0.61	0.76	0.63	0.58	0.62	0.59	0.72	0.67	0.77	0.72	0.71					
13. Responsible Behavior	0.67	0.81	0.66	0.63	0.67	0.65	0.74	0.69	0.75	0.79	0.78	0.79				
14. Technology Adoption	0.63	0.56	0.66	0.65	0.79	0.68	0.69	0.68	0.78	0.73	0.74	0.76	0.77			
15. Tolerance	0.59	0.77	0.63	0.66	0.64	0.66	0.79	0.68	0.80	0.80	0.79	0.72	0.80	0.74		
16. Utilitarian	0.71	0.79	0.77	0.70	0.72	0.79	0.81	0.74	0.76	0.71	0.78	0.77	0.79	0.78	0.71	
17. RI	0.77	0.72	0.79	0.64	0.75	0.75	0.78	0.76	0.79	0.66	0.79	0.82	0.77	0.81	0.60	0.77

Table 5. Results of path relationships in proposed model

Path relationships		(β)	T-value
Direct Effects			
Affective commitment	→ E-Engagement	0.071^{ns}	0.711
Corporate Image	→ E-Engagement	0.549***	15.3
E-Engagement	→ Value co-creation	0.343***	5.751
Hedonic value	→ RI	0.151*	2.539
Technology Adoption	→ Value co-creation	0.413***	11.947
Utilitarian value	→ RI	0.392***	6.302
Value co-creation	→ Hedonic value	0.604***	14.142
Value co-creation	→ RI	0.321***	4.49
Value co-creation	→ Utilitarian value	0.686***	20.026
Age	→ RI	0.102**	2.654
Education	→ RI	0.012 ^{ns}	0.353
Employment	→ RI	0.015 ^{ns}	0.407
Gender	→ RI	0.017 ^{ns}	0.57
Interactions			
Technology Adoption X CE → Value co-creation		0.22***	4.78

Notes: *** $p < 0.001$; ** $p < 0.01$; * $p<0.05$; ns= not significant. RI- Repurchase Intention

run to assess the mediation effects of utilitarian values, and two models were run to examine the mediation effects of hedonic values. The outcome of all four models are presented in Table 6. As shown in Model 1, the impact of value co-creation on repurchase intention (β= .69, p<0.001) were significant. As shown in Model 2, when utilitarian value was added as a mediator, the impact of value co-creation on repurchase intention (β= .39, p<0.001) dramatically reduced, but they still remained significant, indicating the partial mediation effects of utilitarian value on the relation between value co-creation and repurchase intention. Similarly, as shown in Model 3, the impact of value co-creation on repurchase intention (β= .69, p<0.001) were significant. As shown in Model 4, when utilitarian value was added as a mediator, the impact of value co-creation on repurchase intention (β= .44, p<0.001) dramatically reduced, but they still remained significant, indicating partial mediation effects of hedonic value on the relationship of value co-creation and repurchase intention.

Variance account for (VAF) was also used to determine the mediation effects. VAF estimates the size of the indirect effect with respect to the total effect (Hair et al., 2013). The values of VAF more than 80% signifies 'full mediation', while between 20%- 80% signifies 'partial mediation', and VAF less than 20% suggests 'absence of mediation' (Bari et al, 2016). Direct, indirect, and total effects derived from Model 2 and Model 4, as well as VAF value for each of the mediation effects, are shown in Table 7. VAF values for the mediation effects of utilitarian values and hedonic values were 42.65% and 22.81% (Table 7), respectively, indicating utilitarian values and hedonic values partially mediate the effects of VCC on repurchase intention. Overall, the results support both $\mathbf{H_{2a}}$ and $\mathbf{H_{2b.}}$

For testing the moderating effects of technology adoption on the relationship between positively-valanced e-engagement and value co-creation (H4), an interaction term was generated by multiplying technology adoption with positively-valanced e-engagement and run part of the proposed model. Table 5 indicates that the interaction term was significant (β= .22, p >.001). For further investigating the nature of interaction, a slope analysis was conducted, and graph was drawn for one standard deviation above and below than the mean value of technology adoption. As Figure 2 shows, at higher technology

Table 6. Summary of the models run for mediation test

Path relationships	Model 1 Model without Utilitarian values		Model 2 Model with Utilitarian values		Model 3 Model without Hedonic values		Model 4 Model with Hedonic values	
	(β)	T-value	(β)	T-value	(β)	T-value	(β)	T-value
VCC- RI	.69***	18.15	.39***	5.739	.69***	17.632	.44***	8.689
VCC- Utilitarian value			.69***	20.30				
Utilitarian value-RI			.42***	6.121				
VCC- Hedonic value							.61***	14.77
Hedonic value-RI							.21**	3.14

Notes: *** $p < 0.001$; ** $p < 0.01$; VCC-Value co-creation, RI- Repurchase Intention

Table 7. The direct, indirect, and total effects for mediation

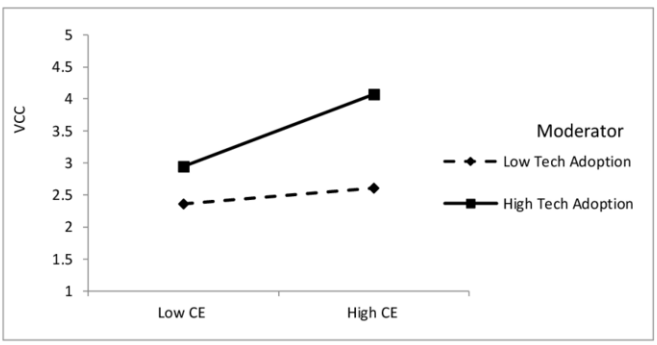
Relationship	Direct effect (β)	Direct effect T-value	Indirect effect (β)	Indirect effect T-value	Total effect (β)	Total effect T-value	VAF	Result
VCC- RI (Model 2)	.39***	5.739	.29***	6.350	.68***	17.998	42.65%	Partial Mediation
VCC- RI (Model 4)	.44***	8.689	.13**	3.09	.57***	18.43	22.81%	Partial Mediation

Notes: *** $p < 0.001$; ** $p < 0.01$; VCC-Value co-creation, RI- Repurchase Intention

adoption, positively-valanced e-engagement is more positively and significantly associated with VCC (β=.41, p<0.001) than at low levels of technology adoption (β=.24, p<0.05). Hence, $\mathbf{H_4}$ is supported.

The proposed model involving control variables explains 57.1 (R^2=0.571) of the variance (R^2) in repurchase intention, while the proposed model without control variables explains 56.7% of the variance (R^2) in repurchase intention, indicating that adding control variables did not significantly change the explanatory power of the model predicting repurchase intention. The proposed model explained 62% and 61.8% of the variance (R^2) in positively-valanced e-engagement and VCC, respectively. Also, the explained variance of all the constructs is far more than the thresholde of 10%

Figure 2. Interaction effects of e-engagement and technology adoption on VCC



(Falk & Miller, 1992), which specifies that the proposed model has adequate explanatory power for all these constructs.

5. DISCUSSION

The study's findings are discussed in this section. The findings show that value co-creation, driven by positively-valanced e-engagement, enhances repurchase intention among e-commerce consumers. The literature suggests that customers engage with e-commerce providers; for example, by creating contents on social media in support of the company and providing new product ideas to the company (Roy et al., 2017; Jaakkola and Alexander, 2014). Our findings show that such positive engagement activities and behaviours drive them to co-create value with the e-commerce providers, which further enhances their repurchase intention tendencies. Further, the findings suggest the mediating role of consumption values (both utilitarian and hedonic values) in the association between value co-creation and repurchase intention, which indicates that value co-creation initiatives enhance repurchase intention among e-commerce consumers by providing them with the utilitarian and hedonic values from the co-creation process.

Furthermore, we hypothesised that technology adoption moderates the association between positively-valanced e-engagement and value co-creation. Our findings support this hypothesis, thus suggests that technology adoption of engaged consumers enhances their contribution to value co-creation. The communication between consumers and companies, enabled and facilitated by technology, further enhances customer participation, engagement and superior customer services (Braun et. al, 2016). Accordingly, the adoption of these technological platforms allows the engaged actors to orchestrate their shared resources into novel value propositions through an effective value co-creation mechanism.

In regard to the antecedent effects on positively-valanced e-engagement, the findings show that corporate image has a significant positive effect on positively-valanced e-engagement, which is consistent with the literature (Islam and Rahman, 2016). However, differing to our anticipations, customer affective commitment does not have a significant positive effect on positively-valanced e-engagement. One plausible explanation for this finding might be that affectively committed customers may feel positive feelings and emotions towards an e-commerce firm (Evanschitzky et al., 2006); however, they may not be motivated enough to manifest engagement activities towards the firm. That is, affectively committed customers may not necessarily be involved themselves in engagement activities, such as blogging or voluntarily suggesting new product designs to an e-commerce firm.

6. ACADEMIC IMPLICATIONS

Though researchers have suggested that successful value co-creation initiatives may lead to repurchase intention among consumers (Vázquez-Casielles et al., 2017; Park and Ha, 2016), a comprehensive model rarely exists in the literature focuses on interplay of affective commitment, corporate image, positively-valanced e-engagement and value co-creation drive repurchase intention among e-commerce consumers. To that end, this research presents a complex and comprehensive mechanism involving mediation and moderation effects to show how value co-creation, driven by positively-valanced e-engagement, affects repurchase intention among e-commerce consumers. Our findings show that value co-creation drives repurchase intention among e-commerce consumers and these effects are mediated by consumption values. Our findings also show that positively-valanced e-engagement triggers value co-creation; however, these affects are moderated by technology adoption. Thus, our study proposes and empirically validates an integrated conceptual model that shows how value co-creation initiatives, influenced by positively-valanced e-engagement, drive repurchase intention among e-commerce consumers. Accordingly, this complex model contributes to the value co-creation literature, particularly for the e-commerce context.

Second, our study has shown the mediation effects of consumption values—hedonic and utilitarian values—on the association between value co-creation and repurchase intention. These findings indicate there is a mechanism operating to convert value co-creation initiatives into positive customer responses, such as repurchase intention. That is, hedonic and utilitarian values derived from value co-creation initiatives convert value co-creation initiatives into repurchase intention. Thus, these mediation effects contribute to develop a detailed understanding customers' responses to value co-creation initiatives.

Third, our study has shown the moderating role of technology adoption in the association between positively valenced e-engagement and value co-creation. Though the extant literature has investigated the association between customer engagement and value co-creation in the past, yet our study is a pioneering attempt in investigating the role that technology adoption plays in this association, more so for the e-commerce context. Given the wide-spread usage of technology in the contemporary business parlance, our study would, henceforth, provide a unique contribution to the conversation around technology *usage* and *adoption* for both value co-creation as well customer engagement researchers.

Finally, our study also extends the understanding of Unified Theory of Acceptance and Use of Technology (UTAUT) in the context of positively-valanced e-engagement and value co-creation. UTAUT suggests that e-commerce consumers would adopt a technology offered by the firm if they believe that the firm is supporting them in the adoption process by addressing each of the four antecedents (*performance expectation, effort expectation, social influence and facilitating conditions*) of the theory (Wang and Shi, 2009; Straub, 2009). That is, positively engaged e-commerce consumers are involved in the co-creating process when they perceive that a company meets their needs, and that the technology offered for the co-creation process is easy to use. With the underpinnings of UTAUT, we propose the moderating role of technology adoption in the association between positively-valanced e-engagement and value co-creation, which was supported by our findings. Thus, we have extended the application of this theory by providing theoretical explanation for the moderating role of technology adoption.

7. MANAGERIAL IMPLICATIONS

Our study has several implications for e-commerce companies. First, our findings show that technology adoption moderates the association between positively-valanced e-engagement and value co-creation in the e-commerce context. This indicates that positively engaged consumers contribute more effectively to the value co-creation process via technological platforms. Hence, it is recommended that e-commerce companies leverage technological platforms to allow consumers to share their capability, abilities, awareness, and resources with the company during the process of co-creation. E-commerce companies can do this effectively by focusing on building online brand communities and social media platforms to enable co-creating activities with the engaged consumers.

Second, given the hyper-competitive nature of the e-commerce sector, value co-creation can prove to be an effective strategy for e-commerce firms in fostering repurchase intention among their customers. Therefore, this study will help e-commerce companies understand usage of value co-creation as a strategy to initiate repurchase intention among their consumers.

Third, our findings suggest that value co-creation initiatives, driven by positively-valanced e-engagement, would encourage repurchase intention among e-commerce consumers only when they experience utilitarian and hedonic values from value co-creation initiatives. Hence, it is advisable that e-commerce companies devise their value co-creation mechanisms for better consumers' utilitarian and hedonic value propositions. To enhance utilitarian values resulting from the process of value co-creation, e-commerce companies can focus on providing superior quality products in lieu of their (consumers') involvement in value co-creation mechanism. This would encourage consumers to continue their involvement in the process of value co-creation and enhance their repurchase intentions.

Finally, to enhance hedonic values resulting from the process of value co-creation, e-commerce companies can focus on providing pleasurable and appealing experiences to customers during the

value co-creation process, which would motivate them to continue buying from the same retailer. Correspondingly, e-commerce companies should also facilitate pleasurable shopping experience to consumers on their platforms. For example, online marketers can design the environment of online store with updated interactional features, such as computer-generated models, virtual dressing rooms, endorsement agents, updated search options, technology combination, exchanging product colours, alternation of products, multimedia videos, zoom view technology, etc. (Islam et al., 2019). These interactive features will provide more hedonic shopping experiences to e-commerce customers, enhancing their repurchase intentions.

8. LIMITATIONS, FUTURE RESEARCH DIRECTIONS, AND CONCLUSION

This present research has some key limitations that can be addressed by future researchers. First, the study is confined to the e-commerce sector in India. Hence, generalising the findings to e-commerce sector around the globe is questionable. Our proposed model needs to be evaluated in other contexts for a better rationalisation. Second, our research used cross-sectional data that can only assess relationship among the variables, and not a causal relationship among them. Specifically, survey-based research design adopted for this study cannot affirm that value co-creation causes repurchase intention. Future studies may carry out a longitudinal survey-based study or an experiment based study for further validation.

The present study opens numerous possibilities for future studies. First, our study shows that positively engaged customers can enhance their contribution to the process of value co-creation through technology adoption. Consequently, future research can assess how the adoption of different modes of technology (such as, *virtual communities*, *social media* or even *personalised platforms build by the service providing company*) would affect consumers' contribution to the value co-creation process. That is, the effectiveness of a value co-creation process can be compared across different technological platforms, and accordingly, the best technological platform can be determined for a given co-creation context.

Second, our model can be expanded by investigating various other mediating as well as moderating factors that would alter the relationship among e-engagement, value co-creation, and repurchase intention. Future researchers can extend this research by identifying and including these factors in the proposed model.

Finally, our model can be used to investigate the effect of value co-creation on other customer responses, such as word-of-mouth intention, customer satisfaction, etc. Future researchers can thus present a broader and detailed understanding of various behavioural responses that would appear as the outcomes of the value co-creation mechanism.

In conclusion, our study examines how value co-creation, driven by positively-valanced e-engagement, enhances repurchase intention among e-commerce consumers. Our study also evaluates the moderating role of technology adoption in the association between positively-valanced e-engagement and value co-creation in the e-commerce context. Author(s) believe that the results of our study would provide significant insights to both practitioners and academia in the e-commerce context.

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APPENDIX A – ADDITIONAL TABLE(S)

Table 8. Additional Information

Construct	Statement	Items
Positively valanced e-Engagement	CE1	Shopping at this online retailer gets me to think about this online retailer
	CE2	I think a lot when I'm shopping at this online retailer
	CE3	Shopping at this online retailer stimulates my interest in learning more about this online retailer
	CE4	I feel very positive when I shop at this online retailer
	CE5	Shopping at this online retailer makes me happy
	CE6	I feel good when I shop at this online retailer
	CE7	I'm proud to shop at this online retailer
	CE8	I spend a lot of time shopping at this online retailer compared to other online retailers
	CE9	Whenever I shop online, I usually shop at this online retailer
	CE10	This online retailer is one of the online retailers I usually shop from when I shop online
Repurchase Intention	RP1	I will shop from this online retailer in the future
	RP2	I will consider this online retailer my first choice when shopping online again in the future
	RP3	I will use this online retailer next time when I shop online
Affective Customer Commitment	COMM 1	I do not feel 'emotionally attached' to this online retailer (R)
	COMM 2	This online retailer has a great deal of personal meaning to me
	COMM 3	I do feel a strong sense of belonging with this online retailer
Utilitarian Value	UTIL 1	The price of the products I purchased from this online retailer are at the right level, given the quality
	UTIL 2	When I make a purchase from this online retailer, I save time
	UTIL 3	The products I purchased from this online retailer were a good buy
	UTIL 4	This online retailer offers a good economic value
Hedonic Value	HED 1	Making an online purchase from this online retailer totally absorbs me
	HED 2	This online retailer doesn't just sell products-it entertains me
	HED 3	Making a purchase from this online retailer "gets me away from it all"
	HED 4	Making a purchase from this online retailer truly feels like "an escape"
Corporate Image	CI 1	This online retailer is regarded as the benchmark of online retailing
	CI 2	This online retailer is professional about online retailing
	CI 3	This online retailer is successful in online retailing
	CI 4	This online retailer is well established in online retailing
	CI 5	This online retailer is trustworthy in online retailing
	CI 6	This online retailer is well reputed
Technology Adoption	TECH 1	Other people come to me for advice on new technologies
	TECH 2	It seems my friends are learning more about the newest technologies than I am (R)

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