Pumping up customer value with convenience and personalisation strategies in e-retailing: an analysis of the engagement connection

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Abstract

Purpose – There is an ongoing challenge to map the efficacy of e-retailing strategies in building both value co-creation opportunities for online customers and customer value for companies. Based on the service-dominant (S-D) logic, an integrative model is provided that connects the impact of convenience and personalisation strategies (CPSs) on an e-retailer's performance – by offering co-creation opportunities and customer engagement.

Design/methodology/approach – The survey instrument is validated and the model is tested with data from active online customers using a novel methodology that blends artificial neural network (ANN) analysis with partial least squares (PLS) in both the measurement model and the path analysis.

Findings – The findings robustly support the model and yield evidence of the contribution of CPSs in effective value propositions, the interface between the S-D logic and customer engagement, and the direct effect of customer engagement on tangible forms of value for companies.

Originality/value – This study is the first scholarly effort to provide a comprehensive understanding of how and why CPSs can maximise customer value for the e-retailer, while simultaneously testing the customer value/engagement interface with a new blended ANN-PLS method.

Keywords Convenience, Personalisation, Co-creation, Engagement, Customer value

Paper type Research paper

Introduction

In the context of interactive marketing, firms promote strategic approaches that respond to a co-creative service-dominant (S-D) logic of marketing (Vargo and Lusch, 2017). They encourage active customer participation and two-way communications, which engender dynamic "mutual influence" and enhance "bidirectional value creation" (Wang, 2021, p. 1). In sync with this, contemporary e-retailers regard online customers as active participants in

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brand initiatives, who co-produce value by constructing their online experiences together with the brand. Consequently, e-retailers tend to adopt strategic interactive approaches that align their technological and managerial endeavours with theoretical accounts that relate to value co-creation (Akaka *et al.*, 2021).

These strategic interactive approaches seek to provide customers with opportunities to co-create value in their interactions with the brand and subsequently leverage elements to profit from the value co-created by customers, thus fuelling value for the company (Kumar and Reinartz, 2016). Hence, an implicit assumption of these approaches is that value co-creation is reciprocal and dyadic (Ranjan and Read, 2021). Firstly, from the customers' standpoint, customers' value co-creation opportunities are conceived as perceived options for co-creating value resulting from their expectations of gaining suitable rewards (Saha *et al.*, 2022). Secondly, from the e-retailers' viewpoint, value co-creation leads e-retailers to derive value from business interactions with their customers in a broader sense. This refers to the value that customers provide to the e-retailer with respect to their future purchases (known as the customer lifetime value [CLV]), as well as to the value stemming from a customer's referral behaviour, the value leveraged by the influence a customer wields on prospects and other customers, and the value attributable to the customer's knowledge for innovations and improvements (Kumar and Pansari, 2016). Therefore, to gain a competitive advantage, e-retailers must first offer online customers perceived value co-creation opportunities and then customers will give value back to the company in a comprehensive sense.

For e-retailers, the issue lies then in making strategic choices that not only provide opportunities for customers to co-create value but also realise customer value for the company (Kumar and Reinartz, 2016). This is because e-retail researchers and practitioners still need to understand the role that concrete strategic levers can play as initiators of value co-creation by and for customers. Several studies have examined the psychological factors motivating customers to be involved in co-creating value (Chen *et al.*, 2018; Ranjan and Read, 2019), the process through which companies can support co-creating value (e.g. Kao *et al.*, 2016) and the necessary business capabilities for implementing value co-creation (e.g. Karpen *et al.*, 2012). However, concrete business strategies as initiators of value co-creation have barely been studied (Alves *et al.*, 2016; Wilden *et al.*, 2017).

In the e-retailing field, convenience and personalisation strategies (CPSs) have emerged as concrete, effective strategic levers to gain customers and stimulate positive customer responses. Anshu *et al.* (2022) have reported that convenience strategies improve customers' attitudes and their intention to repurchase by involving them in co-creation activities. With convenience strategies, e-retailers adapt to customers' lack of shopping time and energy by providing goods and services efficiently, minimising the time and effort required to amend orders and having them promptly delivered (Duarte *et al.*, 2018). Alimamy and Gnoth (2022) and Lalicic and Weismayer (2021) observed similar effects on customers' co-creation intentions via personalisation strategies, through which e-retailers treat customers in a supportive and enriching fashion while catering to their individual preferences (Zhang *et al.*, 2019). However, while there is a potential nexus between CPSs and customers' perceived opportunities to co-create value, previous studies are silent on precisely how these mechanisms function in the creation of value for the company. This is unexpected due to the primary assumption of reciprocity and bidirectionality in value co-creation.

This issue deserves meticulous attention. Therefore, this paper addresses the intricacies of aligning customer-perceived value co-creation opportunities with customer-generated value for the company, as well as the role of CPSs as potential strategic initiators. We approach this challenge with a granular perspective that combines S-D logic with the theoretical underpinnings of customer engagement, a distinct and enduring psychological

mechanism – with multidimensional facets – that influences customers' shopping decisions and their contribution to a brand (Lim *et al.*, 2022). While S-D logic provides a macrofoundational perspective for the large-scale phenomenon of value co-creation, it may offer limited ability to explain underlying mechanisms at the individual level that contribute to value co-creation. On the other hand, engagement can be incorporated into the customer interaction management processes to co-create value (Brodie *et al.*, 2019). Hence, we consider the bridging role of engagement as a microfoundation for value co-creation (Storbacka *et al.*, 2016). Furthermore, consistent with pioneering insights on customer co-created value for the company (Kumar and Pansari, 2016), we appraise four different forms of customer value which capture, respectively, CLV, the value of their referrals of new customers (customer referral value), their positive electronic word-of-mouth or eWOM (customer influencer value) and their informative feedback (customer knowledge value).

Our study develops existing theory by examining the intersection of S-D logic with engagement theoretical accounts. We illustrate how two fundamental concepts central to S-D logic, which reflect the bidirectional and mutually beneficial nature of value co-creation (i.e. customers' opportunities to co-create value and co-creation value for the company), are connected via the multifaceted engagement of customers. Our model also looks at the role of business strategies as value facilitators and how they present a path for e-retailers to consider the antecedents to customer engagement. Consequently, this paper answers the calls in the value co-creation literature for studies with focus on micro lenses (Wilden *et al.*, 2017) and S-D logic-informed strategic drivers (Ranjan and Read, 2021).

This study also heeds the call of the Marketing Science Institute and practitioners for methods that support more robust causal findings demonstrating the effect of marketing strategies on future profitability (MSI, 2022). We do this by suggesting a new blended technique which combines artificial neural networks (ANNs) with partial least squares (PLS), not only in the evaluation of the structural model but also in that of the measurement model. This allows for the examination of potential non-linear effects that capture the interplay between e-retailers' customers and business strategies. This technique, therefore, can provide more accurate predictive power on the impact of e-retailers' strategies.

Conceptual framework

Customer value co-creation and its strategic initiators

Value for the customer, or customer-perceived value, is at the heart of S-D logic (Vargo and Lusch, 2017). S-D logic is a macrofoundational perspective of market relationships which argues that value cannot emerge without the beneficiaries' participation because it is essentially experiential and subjective. Therefore, through the lens of S-D logic, brands present value propositions and then customers actively incorporate and apply knowledge, skills and resources (including monetary resources) to become beneficiaries of the brands' services (Akaka *et al.*, 2021) and also interact and collaborate with brands to co-create value (Vargo *et al.*, 2017). Furthermore, co-creation activities are conceived as mutually beneficial reciprocal actions or influences between brands and customers (Brodie *et al.*, 2019), so value goes both ways (Kumar and Reinartz, 2016). This implies that, once value is created for a customer, the e-retailer can leverage that customer value and turn it into profit, thus creating value for the company.

Business strategic approaches matter in value co-creation (Ranjan and Read, 2021). Companies need to employ marketing strategies that unleash opportunities for customers to integrate business resources and participate in joint collaborative processes to co-create value (Lüftenegger *et al.*, 2017). Such strategies provide the baseline, fostering digital touchpoints and frontline interactions with value propositions that affect the value

actualisation processes performed by the customers, while also ensuring that the benefits customers can obtain (e.g. quick and easy ways to find products, brands and services, a sense of empowerment, pleasurable impressions) are equal to the value proposition (Saarijärvi *et al.*, 2013). This enables customers to anticipate that they will benefit from applying resources and interacting with the brand (Akaka *et al.*, 2021).

Positive connections from CPSs to relevant managerial benchmarks (such as customer satisfaction and loyalty) have been established in the e-retailing literature (e.g. Duarte *et al.*, 2018; Wang *et al.*, 2017). Convenience strategies help customers save time and cognitive, affective and physical effort at any stage of the customer journey. Therefore, these strategies may translate into value that customers can obtain from investing a relatively small amount of their time and energy in shopping at the e-retailer's online store or app (Roy *et al.*, 2018). Likewise, personalisation strategies can become powerful sources of value for customers insofar as they enable the e-retailer to offer customers the "right" treatment, propositions and services at the "right" moment (Schreiner *et al.*, 2019, p. 88).

In light of the preceding discussion, we suggest that examining CPSs as potential antecedents of customers' value co-creation opportunities has merit for two reasons. Firstly, certain strategic approaches, leveraged with S-D logic, can act as motivational drivers for customers and be conducive to resource integration and bidirectional interaction. Secondly, previous research supports the notion that value propositions that respond to CPSs prompt favourable customer experience outcomes, thus becoming key mechanisms leading to value co-creation.

Value co-creation and the logic of engagement

S-D logic offers a customer-centred view of exchanges, aligned with the concept of engagement (Storbacka *et al.*, 2016). This is because it promotes the brand's interest in committing itself to and supporting the customer. Likewise, engagement can be conceptually regarded with the aid of the systemic S-D logic as a consumer behaviour outcome resulting from the customer's individual, dynamic, value-seeking experience with the brand (Hollebeek *et al.*, 2019). Put simply, engagement can be understood as a customer's volitional co-creative experience that takes place within a larger-scale, interactive co-creation process.

Previous empirical research into the intersection of S-D and engagement, although scarce (e.g. Cheung *et al.*, 2021; Pentina *et al.*, 2018), concurs in depicting engagement as a building block in the understanding of joint value-creating processes. Firstly, since the focal mechanisms of engagement lead to directing more attention, passion and energy towards a value proposition, the engagement experience can be associated with customers' voluntary contributions to co-creation. Secondly, considering that engagement reflects customers' proactive interactions and efforts that exceed regular transactional expectations (Harmeling *et al.*, 2017) and translates into resource development and co-creation (Hollebeek *et al.*, 2019), it can be anticipated that engagement drives enhanced business benefits.

We therefore consider the interface of S-D logic with engagement as a suitable framework to understand how co-creation mechanisms operate and value is created for both the customer and the e-retailer (Hollebeek *et al.*, 2019). S-D logic largely reflects a metatheoretical framework, oriented towards a broad understanding of the overall market dynamics that lead to value co-creation (Akaka *et al.*, 2021). The microfoundational focus of engagement complements this perspective by providing a more granular understanding of customers' individual psychological mechanisms and conative responses when interacting with value propositions (Storbacka *et al.*, 2016).

Research model and hypotheses

Strategic drivers leading to co-creating opportunities

CPSs are designed by e-retailers to offer customers relevant, appealing communications and services that contribute to the goals of mutual interaction and influence (Lalicic and Weismayer, 2021; Roy *et al.*, 2018). Convenience strategies aim to minimise non-monetary costs for customers through value propositions that include time-saving and effort-minimising shopping functionalities, extensive assortments and highly efficient customer services (Duarte *et al.*, 2018). Personalisation strategies, however, translate into distinctive recommendations and services, and a sense that a customer's particular preferences matter and that the shopping environment is supportive (Ameen *et al.*, 2021). Therefore, these strategies address customers' pursuit of personal meaning and uniqueness acknowledged by others, making them feel valued and understood (Ranjan and Read, 2021).

Consistent with the S-D logic/engagement interface, we conceive value co-creation opportunities as customers' perceptions about the multifaceted processes (Sarasvuo *et al.*, 2022) that a company is willing to deploy to treat customers as endogenous assets (Zeithaml *et al.*, 2020). We envisage value co-creation opportunities as a second-order construct comprising three dimensions, specifically knowledge sharing, equitable connection and constructive dialogue. The knowledge sharing dimension refers to a company's disposition to actively seek customers' inputs regarding the value proposition and to learn from and with the customers (Ranjan and Read, 2016). The second dimension, equitable connection, reflects a company's readiness to empower customers, providing them with critical information (Oklevik *et al.*, 2024) and mechanisms to make their voices heard in shaping the value proposition (Xu *et al.*, 2023). The constructive dialogue component is conceived as the company's willingness to enter into empathic communication with customers so they feel that interaction is welcome and are offered a rich environment in which to build meaningful conversations (Oklevik *et al.*, 2024).

We suggest that both CPSs foster better understanding of the multifaceted opportunities the e-retailer offers customers to contribute to value co-creation processes. We argue that there are two reasons for this. Firstly, drawing on the tenets of social exchange, it can be inferred that customers can anticipate the value they may co-create based on the convenience and personalisation value propositions (Islam *et al.*, 2019). Secondly, customers tend to appreciate and are more willing to process brand-related information from e-retailers who meet their needs and expectations (e.g. offering support mechanisms for time saving and tailored services), thereby devoting greater cognitive effort to understanding their value propositions and their mechanisms for value co-creation (Roy *et al.*, 2018). Building on this rationale, we propose the following hypotheses:

H1a. A convenience strategy has a positive effect on value co-creation opportunities.

H1b. A personalisation strategy has a positive effect on value co-creation opportunities.

Role of engagement in value co-creation

In the contemporary literature on engagement, there is consensus regarding its multidimensional nature (see Lim *et al.*, 2022). A shopping behavioural dimension (Hollebeek *et al.*, 2014) and an affective dimension (Lourenço *et al.*, 2022) are commonly regarded as central to engagement. Likewise, conscious attention (Vivek *et al.*, 2014), absorption and information search have been identified as fundamental components of engagement (Dessart *et al.*, 2016). Building on this research, we present engagement as a second-order construct, comprising five conceptually distinct elements: conscious attention, absorption, affective engagement, information search and shopping activation. Conscious attention denotes the active psychological mechanism experienced by customers

who allocate their cognitive processing resources to the brand, filtering out other unrelated stimuli (Vivek *et al.*, 2014). Like conscious attention, absorption is also a cognitive mechanism. It indicates a customer being intensely mentally engrossed with respect to the object of engagement, so deeply that it is hard to mentally detach from it (Dessart *et al.*, 2016). Affective engagement reflects the combined and enduring positive emotional states felt by customers towards the focus of engagement (Lourenço *et al.*, 2022). Information search activation is a behavioural manifestation pertaining to the customer's deliberate efforts to acquire knowledge, experiences or other resources from the brand (Dessart *et al.*, 2016). Shopping activation is also a behavioural response, manifesting itself in the customer's active participation in brand-related activities (Hollebeek *et al.*, 2014). Accordingly, we conceive engagement as a persistent, positive investment made by the customer in their interactions with the e-retailer (Hsieh and Chang, 2016), shaped by brand-related processes of mental elaboration (in the form of high levels of conscious attention and absorption), psychological affect and behavioural effort (characterised by information search behaviour and shopping activation).

We also suggest that when favourable perceptions of opportunities for co-creation are formed, these perceptions are mentally accessible and, thus, can increase a customer's dispositions and actions to seize them (Pierro *et al.*, 2012). Therefore, the customer will devote cognitive, emotional and behavioural resources to the company to dynamically integrate viewpoints, enhance abilities, address issues and facilitate marketing activities and a meeting of mutual interests – which all enhance value actualisation (Ranjan and Read, 2016).

H2. Value co-creation opportunities have a positive effect on engagement.

An extensively used, well-regarded metric of customer value for an e-retailer is CLV (Dahana *et al.*, 2019). CLV refers to the present value of future profits accruing from a customer (Kumar and Reinartz, 2016). It gauges the combined net monetary benefit of a customer's transactions (i.e. the difference between revenues and costs) throughout their lifetime of being a brand patron.

Research into the consequences of engagement provides evidence that engagement may impact CLV by influencing repurchase intention and customer retention. For example, Islam *et al.* (2019) and Liu *et al.* (2019) have reported the effect of engagement on repatronage intent, while Zhang *et al.* (2017) hold that, because engagement improves customer experiences, it leads the online store (or app) to be "sticky" from the customer perspective and, consequently, customers dwell on brand content and services.

H3a. Engagement has a positive effect on customer lifetime value.

Customer referral value is often stimulated by the company using extrinsic rewards (Pansari and Kumar, 2017). It captures the value generated for the company by a customer who persuades prospects in their personal social networks to become new customers, thus reducing customer acquisition costs and increasing future revenue streams (Kumar and Pansari, 2016). We expect engagement to drive referral value due to the engaged customers' enthusiastic connection with the e-retailer and the positive nature of endorsing activities (Hollebeek *et al.*, 2021). Thus, engaged customers may be more willing to be involved in incentivised referrals, not only to directly benefit themselves (through the extrinsic benefit linked to the referral programme) but also to help both the prospects and the e-retailer (Clark *et al.*, 2020).

H3b. Engagement has a positive effect on customer referral value.

Customer influencer value gauges the profitability generated by a customer who enhances the brand appeal (Verma *et al.*, 2023) by voluntarily praising their experiences with the

brand amongst their close social networks on social media and beyond (mainly via eWOM), and by conversing with them, giving them assistance and recommending the brand (Hamilton *et al.*, 2016). We hold that engagement facilitates customer influencer value insofar as engaged customers, due to their close connection with the e-retailer (Zhang *et al.*, 2017), are more inclined to be involved in self-initiated contributions towards the brand (Hsieh and Chang, 2016), and also because, through collaborative communication in eWOM, they can express their uniqueness and demonstrate their acumen about the e-retailer to their social networks (Hinson *et al.*, 2019). Furthermore, these customers can be more persuasive since their personal social network connections are predisposed to recognise their communications as helpful (Hollebeek *et al.*, 2021).

H3c. Engagement has a positive effect on customer influencer value.

Furthermore, a customer can raise knowledge value when they autonomously support the e-retailer to better understand customers' needs and provide creative ideas for innovation, reviews and suggestions to enhance services (Hollebeek *et al.*, 2021) – so the new or improved value proposition ultimately attracts more customers (Pansari and Kumar, 2017). Since engaged customers have a higher interest in and more knowledge of an e-retailer's value proposition, they may be better able and predisposed to contribute to the company's knowledge development process by providing insightful feedback and deeper understanding of customers' needs and preferences (Hsieh and Chang, 2016).

H3d. Engagement has a positive effect on customer knowledge value.

Research methodology

Measures

We operationalised value co-creation opportunities through three measurement constructs (knowledge sharing, equity, dialogue) developed by Ranjan and Read (2016) to measure co-production. Engagement was comprised of cognitive processing elements (conscious attention, absorption), affection and behavioural components (information search, shopping activation), which we measured with items borrowed from Dessart *et al.* (2016), Hollebeek *et al.* (2014) and Vivek *et al.* (2014). We gauged convenience strategies with items developed by Mathwick *et al.* (2001), Eom and Lu (2019), Beauchamp and Ponder (2010), Duarte *et al.* (2018), Parasuraman *et al.* (2005) and Seiders *et al.* (2007) and we captured personalisation with Zhang *et al.*'s scale (2019). To depict CLV, we used items from Kumar and Pansari (2016) and Grewal *et al.* (2004). Kumar and Pansari's scales (2016) were employed to measure customer referral value and customer influencer value, and customer knowledge value was captured with Hamilton *et al.*'s items (2016). All measurement scales had been successfully tested for reliability and validity in the literature; we adapted them slightly to fit the e-retailing context (see Table I). Except for CLV1, we recorded the responses using a seven-point Likert-type scale, ranging from "completely disagree" to "completely agree". CLV1 answers were anchored from "very unlikely" to "very likely".

We employed Podsakoff *et al.*'s tactics (2003) with potential sources of common method biases in the questionnaire. To obtain an equivalent Chinese version, two professional translators performed a parallel back-translation. Next, a bilingual (Chinese/English) co-author compared and revised the Chinese version, and three bilingual marketing scholars examined its face and content validity.

We used three screening questions to ensure that the participants had sufficient e-retailing experience. Qualified respondents then listed the three e-retailers that they had

Table I.
Internal consistency reliability, individual item reliability and convergent validity of the measurement model

Construct	Cron-bach's α	Dillon–Goldstein's ρ	First eigenvalue	Second eigenvalue	AVE*	Item	Weight*	Loading*	Communality*
Convenience (C)	0.913	0.929	4.970	0.828	0.619 (0.621)	(C1) Buying at [online retailer/app] is an efficient way to manage my time (Mathwick *et al.*, 2001)	0.183 (0.154)	0.749 (0.744)	0.561 (0.553)
						(C2) Shopping from [online retailer/app] makes my life easier (Mathwick *et al.*, 2001)	0.182 (0.166)	0.829 (0.831)	0.687 (0.691)
						(C3) Buying at [online retailer/app] enables me to accomplish my shopping tasks faster (Eom and Lu, 2019)	0.180 (0.158)	0.805 (0.808)	0.649 (0.653)
						(C4) At [online retailer/app], I can find what I want without having to look elsewhere (Beauchamp and Ponder, 2010)	0.192 (0.156)	0.777 (0.763)	0.604 (0.582)
						(C5) At [online retailer/app], it takes a minimal amount of effort on my part to get what I want (Duarte *et al.*, 2018)	0.181 (0.169)	0.834 (0.836)	0.695 (0.698)
						(C6) [Online retailer/app] quickly delivers what I order (Parasuraman *et al.*, 2005)	0.166 (0.146)	0.737 (0.740)	0.542 (0.547)
						(C7) [Online retailer/app] promptly takes care of product exchanges and returns (Seiders *et al.*, 2007)	0.172 (0.154)	0.755 (0.765)	0.570 (0.586)
						(C8) Any purchase problems I experience are quickly resolved by [online retailer/app] (Seiders *et al.*, 2007)	0.173 (0.165)	0.804 (0.813)	0.647 (0.661)
Personalisation (S)	0.869	0.920	2.380	0.364	0.792 (0.792)	(P1) [Online retailer/app] is able to meet my personal needs (Zhang *et al.*, 2019)	0.301 (0.373)	0.868 (0.871)	0.753 (0.758)
						(P2) [Online retailer/app] understands my preferences and recommends interesting information to me (Zhang *et al.*, 2019)	0.310 (0.360)	0.894 (0.891)	0.800 (0.794)
						(P3) [Online retailer/app] offers me personalized service (Zhang *et al.*, 2019)	0.317 (0.390)	0.907 (0.908)	0.823 (0.825)
Knowledge sharing (KS)	0.863	0.916	2.350	0.363	0.784 (0.785)	(KS1) [Online retailer/app] is open to my suggestions about its existing products or ideas about new services (Ranjan and Read, 2016)	0.349 (0.368)	0.880 (0.886)	0.774 (0.784)
						(KS2) [Online retailer/app] provides me with a suitable environment and opportunities to me to offer suggestions and ideas (Ranjan and Read, 2016)	0.364 (0.373)	0.894 (0.896)	0.799 (0.803)
						(KS3) I would willingly spend time and make an effort to share my ideas and suggestions with [online retailer/app] in order to help it improve its services and processes (Ranjan and Read, 2016)	0.372 (0.388)	0.882 (0.876)	0.778 (0.767)

(*continued*)

Table I.

Construct	Cron-bach's α	Dillon–Goldstein's ρ	First eigenvalue	Second eigenvalue	AVE*	Item	Weight*	Loading*	Communality*
Equity (EQ)	0.854	0.902	2.790	0.543	0.695 (0.697)	(EQ1) [Online retailer/app] has easy access to information about my preferences (Ranjan and Read, 2016)	0.297 (0.278)	0.783 (0.765)	0.614 (0.585)
						(EQ2) [Online retailer/app] considers my role to be as important as its own (Ranjan and Read, 2016)	0.317 (0.313)	0.857 (0.852)	0.734 (0.727)
						(EQ3) [Online retailer/app]'s processes are aligned with my requirements (i.e. the way I wish them to be) (Ranjan and Read, 2016)	0.284 (0.300)	0.854 (0.868)	0.729 (0.753)
						(EQ4) We the customers share an equal role in determining the final outcome of [online retailer/app]'s processes (Ranjan and Read, 2016)	0.292 (0.306)	0.838 (0.850)	0.703 (0.723)
Dialogue (D)	0.865	0.908	2.850	0.460	0.711 (0.713)	(D1) [Online retailer/app] lets me express my specific requirements at my convenience (Ranjan and Read, 2016)	0.279 (0.309)	0.843 (0.853)	0.711 (0.727)
						(D2) [Online retailer/app] conveys relevant information (Ranjan and Read, 2016)	0.282 (0.292)	0.851 (0.856)	0.724 (0.732)
						(D3) [Online retailer/app] offers sufficient consumer interaction (Ranjan and Read, 2016)	0.283 (0.297)	0.843 (0.842)	0.711 (0.709)
						(D4) In order to get the maximum benefit from [online retailer/app], I have to play a proactive role (i.e. I have to apply my skills, knowledge, time, etc.) (Ranjan and Read, 2016)	0.294 (0.285)	0.837 (0.825)	0.700 (0.681)
Conscious attention (CA)	0.882	0.927	2.430	0.326	0.808 (0.809)	(CA1) Anything related to [online retailer/app] grabs my attention (Vivek *et al.*, 2014)	0.327 (0.365)	0.894 (0.890)	0.798 (0.792)
						(CA2) I like learning more about [online retailer/app] (Vivek *et al.*, 2014)	0.318 (0.361)	0.885 (0.890)	0.783 (0.792)
						(CA3) I pay a lot of attention to anything about [online retailer/app] (Vivek *et al.*, 2014)	0.339 (0.386)	0.918 (0.917)	0.842 (0.841)
Absorption (A)	0.909	0.936	3.140	0.384	0.784 (0.786)	(A1) (When I interact with [online retailer/app]…) I forget everything else around me (Dessart *et al.*, 2016)	0.286 (0.286)	0.902 (0.898)	0.813 (0.806)
						(A2) Time flies (Dessart *et al.*, 2016)	0.257 (0.275)	0.828 (0.848)	0.685 (0.720)
						(A3) I get carried away (Dessart *et al.*, 2016)	0.290 (0.302)	0.910 (0.914)	0.829 (0.835)
						(A4) It is difficult to step away (Dessart *et al.*, 2016)	0.297 (0.265)	0.900 (0.884)	0.810 (0.781)

(*continued*)

Table I.

Construct	Cronbach's α	Dillon–Goldstein's ρ	First eigenvalue	Second eigenvalue	AVE*	Item	Weight*	Loading*	Communality*
Affective engagement (AE)	0.889	0.923	3.000	0.419	0.747 (0.750)	(AE1) I feel very positive when I shop at [online retailer/app] (Hollebeek *et al.*, 2014)	0.307 (0.289)	0.874 (0.862)	0.764 (0.744)
						(AE2) Shopping at [online retailer/app] makes me happy (Hollebeek *et al.*, 2014)	0.290 (0.290)	0.876 (0.888)	0.767 (0.789)
						(AE3) I feel good when I shop at [online retailer/app] (Hollebeek *et al.*, 2014)	0.260 (0.291)	0.850 (0.871)	0.722 (0.758)
						(AE4) I'm proud to shop at [online retailer/app] (Hollebeek *et al.*, 2014)	0.307 (0.285)	0.857 (0.841)	0.734 (0.708)
Information search activation (IA)	0.851	0.910	2.310	0.427	0.769 (0.771)	(IA1) I ask [online retailer/app] questions (Dessart *et al.*, 2016)	0.286 (0.372)	0.816 (0.842)	0.665 (0.710)
						(IA2) I look for ideas or information from [online retailer/app] (Dessart *et al.*, 2016)	0.334 (0.366)	0.905 (0.894)	0.818 (0.799)
						(IA3) I ask for help from [online retailer/app] (Dessart *et al.*, 2016)	0.344 (0.401)	0.908 (0.897)	0.825 (0.804)
Shopping activation (SA)	0.859	0.914	2.340	0.392	0.779 (0.780)	(SA1) I spend a lot of time shopping at [online retailer/app], compared to other online stores (Hollebeek *et al.*, 2014)	0.352 (0.392)	0.901 (0.896)	0.811 (0.802)
						(SA2) Whenever I'm shopping for certain types of products, I usually shop at [online retailer/app] (Hollebeek *et al.*, 2014)	0.352 (0.391)	0.909 (0.904)	0.826 (0.817)
						(SA3) [Online retailer/app] is one of the retailers where I usually shop when I buy certain products (Hollebeek *et al.*, 2014)	0.303 (0.348)	0.836 (0.848)	0.698 (0.720)
CLV	0.805	0.885	2.160	0.495	0.720 (0.719)	(CLV1) How likely are you to buy from [online retailer/app] in the future? (Grewal *et al.*, 2004)	0.298 (0.333)	0.812 (0.795)	0.660 (0.632)
						(CLV2) My purchases at [online retailer/app] make me content (Kumar and Pansari, 2016)	0.333 (0.430)	0.885 (0.888)	0.783 (0.789)
						(CLV3) Owning the products (or using the services) from [online retailer/app] makes me happy (Kumar and Pansari, 2016)	0.311 (0.411)	0.846 (0.859)	0.716 (0.738)

(*continued*)

Table I.

Construct	Cron-bach's α	Dillon–Goldstein's ρ	First eigenvalue	Second eigenvalue	AVE*	Item	Weight*	Loading*	Communality*
Customer referral value (CRV)	0.905	0.940	2.520	0.262	0.839 (0.840)	(CRV1) I promote [online retailer/app] to my friends and relatives because of the incentives they give me (Kumar and Pansari, 2016)	0.321 (0.344)	0.912 (0.904)	0.832 (0.817)
						(CRV2) In addition to the value I derive from the product, the incentives they give me also encourage me to refer [online retailer/app] to my friends and relatives (Kumar and Pansari, 2016)	0.318 (0.392)	0.918 (0.929)	0.843 (0.862)
						(CRV3) I enjoy referring [online retailer/app] because of the incentives they give me (Kumar and Pansari, 2016)	0.316 (0.355)	0.918 (0.916)	0.843 (0.840)
Customer influencer value (CIV)	0.874	0.923	2.400	0.341	0.799 (0.799)	(CIV1) I love talking about my experience with [online retailer/app] (Kumar and Pansari, 2016)	0.310 (0.366)	0.889 (0.885)	0.790 (0.784)
						(CIV2) I discuss the benefits that I get from [online retailer/app] with others (Kumar and Pansari, 2016)	0.314 (0.367)	0.907 (0.907)	0.823 (0.823)
						(CIV3) I feel I am part of [online retailer/app] and mention it in my conversations (Kumar and Pansari, 2016)	0.311 (0.385)	0.885 (0.889)	0.784 (0.791)
Customer knowledge value (CKV)	0.908	0.935	3.130	0.380	0.782 (0.783)	(CKV1) I will let [online retailer/app] know how that they can better serve my needs (Hamilton *et al.*, 2016)	0.272 (0.296)	0.876 (0.880)	0.767 (0.774)
						(CKV2) I make constructive suggestions to [online retailer/app] on how to improve (Hamilton *et al.*, 2016)	0.281 (0.291)	0.904 (0.904)	0.818 (0.817)
						(CKV3) If I have a useful idea on how to improve the product and/or service, I give it to [online retailer/app] (Hamilton *et al.*, 2016)	0.276 (0.272)	0.896 (0.893)	0.803 (0.798)
						(CKV4) When I experience a problem with [online retailer/app], I let them know so they can improve (Hamilton *et al.*, 2016)	0.263 (0.271)	0.861 (0.862)	0.742 (0.743)

Note: *Values yielded by the analysis of individual item reliability and convergent validity with a linear approach are shown in brackets

purchased from and with which they were most familiar. The survey software randomly chose one of the three e-retailers mentioned and inserted its name into the questionnaire.

To maximise variance in the data (Parasuraman *et al.*, 2005), a third of the participants were asked about their experiences at the e-retailer they were most familiar with, a third answered questions related to their experience at the second most familiar e-retailer and the final third assessed their third listed e-retailer.

Data collection

We used the WenJuan survey company to collect 605 valid questionnaires from active customers of Chinese e-retailers (we had previously removed 5 questionnaires that were incomplete or demonstrated careless response patterns). Most respondents ranged from 30 to 39 years in age (25.5 per cent), and 52.6 per cent were male.

We did not detect any significant differences between the target population (CNNIC, 2023) and the sample for age and gender in the correlation (0.951) and t-test (p-value = 0.663), respectively. Thus, we dismissed under-coverage and non-response issues.

Common method variance

No relevant common method issues were detected with the correlation-based marker technique, the correlation matrix procedure or the Harman's single-factor test. The marker variable has correlations below 0.20 with the items of at least three constructs in the measurement model and its factor loadings are less than 0.30. All pairwise correlations between constructs are below 0.90 (Appendix 1), and no single factor in the unrotated factor analysis accounts for more than 50 per cent of the variance.

Results

Research has shown a PLS-ANNs' two-step methodology to be an efficient technique to estimate and explain complex models with latent variables while accounting for non-linearities (e.g. Rodríguez-Ardura and Meseguer-Artola, 2020). Nevertheless, since the latent variable scores from PLS are used as inputs for an ANN multilayer training algorithm, these scores are obtained in a linear fashion from the information contained in the scale items.

To compensate for this shortcoming, we used ANNs when measuring the constructs from the initial items, as well as for performing the path analysis. Accordingly, we conducted the following analyses: (1) a traditional analysis of the measurement model and an additional measurement model assessment based on unsupervised ANNs; (2) a PLS analysis on the constructs measured by the conventional model and another PLS analysis with the construct scores yielded by the ANN informed-measurement model; (3) a non-linear path analysis with supervised ANNs using the linear measurements and another one using non-linear measurements; and (4) a sensitivity analysis of the previous two non-linear path analyses.

Measurement model

Firstly, we used a PLS approach to measure the constructs in the model linearly and examine their psychometric properties. Internal consistency reliability is satisfactory since all Cronbach's α values and Dillon–Goldstein's ρ values exceed 0.70, the first eigenvalues are all greater than 1, and all second eigenvalues are below 1 (Table I). The convergent validity condition was also met given that all items' loadings on their corresponding constructs exceed 0.70, all communalities are larger than 0.50 and the

average variance extracted (AVE) of each construct is above 0.50. To establish the discriminant validity, we confirmed that the square root of the AVE of each latent variable is greater than its correlations with the other constructs and that all values of the heterotrait–monotrait (HTMT) ratio of correlations are below 0.85. Additionally, the cross-loading matrix shows that the factor loading indicators on the assigned construct are higher than all loadings on the other constructs (Appendix 1).

Secondly, we measured the constructs non-linearly with an unsupervised ANN in each of the item groups. These ANNs have a hidden layer with one node and the hyperbolic tangent as the activation function. Table I shows that loadings in the item-construct correlations with ANNs are similar to those yielded by the linear approach and that the AVE values obtained from the communalities are almost the same.

Structural model

We measured the two second-order constructs in the model using the repeated item technique. We reflectively associated the higher-order constructs with their respective dimensions, applied mode A and used a centroid inner weighting scheme.

Next, we assessed the structural model with linear measures. Firstly, we found the structural model offers a moderate level of predictive accuracy as the coefficient of determination (R^2) values of the regressions are all above or very close to 0.50 (Figure 1) – the two higher-order constructs are perfectly measured through their dimensions (with $R^2 = 1$). Secondly, the predictive relevance of the model for the endogenous latent constructs is high because Stone–Geiser Q^2 values exceed 0.50. Thirdly, the structural model's standardised root mean residual is 0.08, which supports the validity of the model.

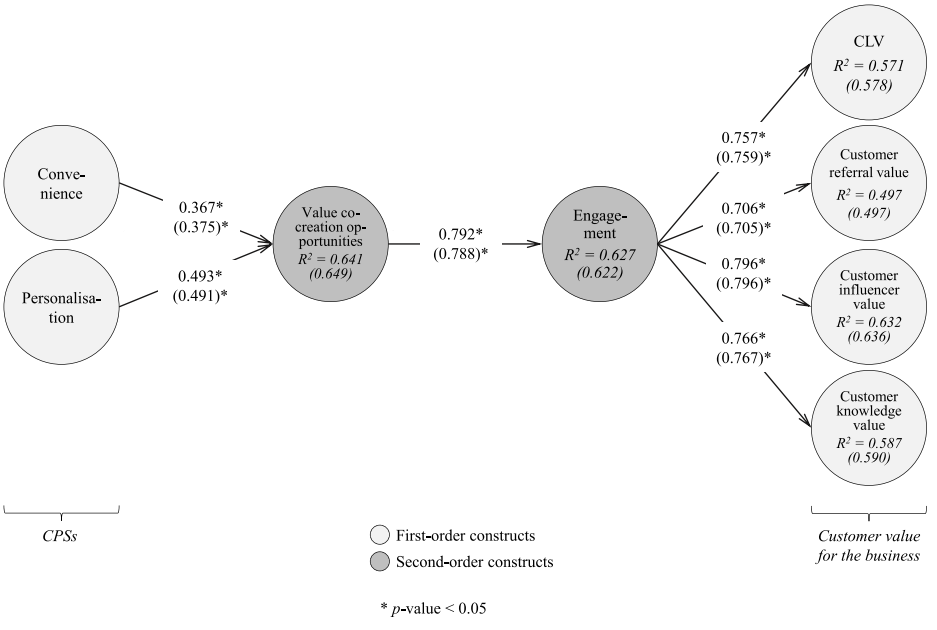

Figure 1.
Path coefficients of the PLS model with (and without) unsupervised ANN measurements

Source: Authors' own work

As the sample does not follow a multivariate normal distribution, we tested the significance of the path coefficients using the bootstrapping method, with 500 resamples (Table II). All p-values are clearly below 0.05 and below the Benjamini–Hochberg alpha correction values. Consequently, we determined that all causal (linear) relationships are significant.

All these procedures, applied to the measures obtained from the unsupervised ANNs, yielded similar results. This indicates that the model estimation is consistent across non-linear and linear analyses and that the new measurement method suggested is robust.

Non-linear path analysis

We examined non-linear dependencies between the last endogenous constructs of the structural model and the precedent variables. All ANNs have the same structure: four input variables (convenience, personalisation, value co-creation opportunities and engagement), one hidden layer and one output variable (CLV, customer referral value, customer influencer value or customer knowledge value). Since we applied two measurement approaches (with and without unsupervised ANNs), we analysed eight networks.

To select the number of nodes in the hidden layer of each network, we used Blum's technique. Then we followed a trial-and-error procedure and observed that the best results are obtained with four hidden nodes.

We applied a neural network multilayer perceptron training algorithm, which has a single hidden layer, to each network. We adopted the resilient backpropagation algorithm with weight backtracking, used the logistic function as the activation function and applied the min–max scale method to have all measures ranging between 0 and 1. The differentiable error function to minimise was the sum of squared errors. We performed 10-fold cross-validation for each network, with a data set ratio of 90:10 for training and testing.

The non-linear models are efficient and give good accurate predictions, and all input factors are appropriate for predicting each endogenous variable, since the root mean squared error (RMSE) values for both the training data set and testing data set are acceptable for all networks (Table III). Although there are small differences in the results yielded with and without unsupervised measures, the performance of all networks is similar.

Sensitivity analysis

For each neural network, we conducted a sensitivity analysis with Garson's algorithm. To gauge the average importance (AI) of input factors, we used the importance-related values from each of the 10-fold cross-validations. We calculated the normalised importance (NI) as the proportion of its relative importance with respect to the factors' maximum relative importance (Table III). These findings strongly support the results obtained in the PLS analysis since all explanatory variables are active in the neural network to explain the output variables.

Discussion and implications

Discussion

The new blended PLS-ANN approach presented in this study facilitates a comprehensive understanding of how and why CPSs maximise customer value for the e-retailer while simultaneously testing the customer value/engagement interface. The PLS analysis allows for the examination of significant indicators of the predictor constructs while a new measurement approach through unsupervised ANNs captures the non-linear effects of the

Table II.
Results from the bootstrapping resampling procedure with (and without) unsupervised ANN measurements

Hypotheses	Paths	Path coefficients (original)	Path coefficients (boot-strapping)	Std. error	*p*-value	Benjamini–Hochberg alpha correction	Results
H1a	Convenience → Value co-creation opportunities	0.368 (0.374)	0.367 (0.375)	0.038 (0.040)	0.000 (0.000)	0.050	Accepted
H1b	Personalisation → Value co-creation opportunities	0.493 (0.490)	0.493 (0.491)	0.037 (0.040)	0.000 (0.000)	0.025	Accepted
H2	Value co-creation opportunities → Engagement	0.792 (0.789)	0.792 (0.788)	0.017 (0.020)	0.000 (0.000)	0.013	Accepted
H3a	Engagement → Customer lifetime value	0.756 (0.760)	0.757 (0.759)	0.023 (0.023)	0.000 (0.000)	0.010	Accepted
H3b	Engagement → Customer referral value	0.705 (0.705)	0.706 (0.705)	0.024 (0.023)	0.000 (0.000)	0.008	Accepted
H3c	Engagement → Customer influencer value	0.795 (0.797)	0.796 (0.796)	0.019 (0.019)	0.000 (0.000)	0.007	Accepted
H3d	Engagement → Customer knowledge value	0.766 (0.768)	0.766 (0.767)	0.020 (0.021)	0.000 (0.000)	0.006	Accepted

Table III.
Neural networks' prediction accuracy and sensitivity analyses with (and without) unsupervised measures

No.	CLV		CRV		CIV		CKV	
	RMSE train	RMSE test	RMSE train	RMSE test	RMSE train	RMSE test	RMSE train	RMSE test
1	0.126 (0.119)	0.112 (0.110)	0.189 (0.182)	0.184 (0.213)	0.144 (0.141)	0.167 (0.151)	0.142 (0.135)	0.149 (0.155)
2	0.125 (0.123)	0.122 (0.108)	0.189 (0.182)	0.189 (0.218)	0.145 (0.147)	0.164 (0.116)	0.138 (0.138)	0.161 (0.125)
3	0.124 (0.116)	0.135 (0.140)	0.185 (0.186)	0.210 (0.190)	0.147 (0.140)	0.154 (0.164)	0.139 (0.134)	0.139 (0.162)
4	0.128 (0.118)	0.115 (0.138)	0.185 (0.189)	0.194 (0.171)	0.148 (0.145)	0.132 (0.131)	0.139 (0.136)	0.150 (0.144)
5	0.122 (0.118)	0.133 (0.135)	0.183 (0.191)	0.226 (0.194)	0.150 (0.141)	0.140 (0.168)	0.135 (0.136)	0.149 (0.151)
6	0.122 (0.124)	0.135 (0.106)	0.189 (0.188)	0.206 (0.162)	0.149 (0.143)	0.138 (0.146)	0.139 (0.138)	0.144 (0.148)
7	0.122 (0.117)	0.146 (0.112)	0.186 (0.184)	0.225 (0.197)	0.147 (0.143)	0.157 (0.134)	0.143 (0.137)	0.109 (0.128)
8	0.127 (0.118)	0.133 (0.125)	0.188 (0.182)	0.195 (0.233)	0.141 (0.142)	0.189 (0.171)	0.139 (0.138)	0.157 (0.117)
9	0.123 (0.122)	0.123 (0.115)	0.187 (0.185)	0.204 (0.193)	0.148 (0.145)	0.143 (0.131)	0.139 (0.135)	0.152 (0.158)
10	0.126 (0.114)	0.127 (0.155)	0.186 (0.182)	0.206 (0.204)	0.145 (0.144)	0.173 (0.159)	0.140 (0.138)	0.143 (0.140)
Mean	0.124 (0.119)	0.128 (0.124)	0.187 (0.185)	0.204 (0.197)	0.146 (0.143)	0.156 (0.147)	0.139 (0.137)	0.145 (0.143)
	AI	NI	AI	NI	AI	NI	AI	NI
C	0.239 (0.204)	61.132 (50.377)	0.247 (0.152)	67.484 (42.170)	0.191 (0.129)	56.081 (39.056)	0.123 (0.196)	27.522 (58.591)
P	0.215 (0.243)	55.029 (60.119)	0.189 (0.16)	51.683 (44.488)	0.158 (0.246)	46.608 (74.664)	0.171 (0.154)	38.234 (45.977)
Value co-creation opportunities	0.157 (0.149)	40.129 (36.759)	0.198 (0.329)	54.211 (91.359)	0.311 (0.296)	91.599 (89.795)	0.258 (0.314)	57.510 (93.733)
Engagement	0.390 (0.404)	100.000 (100.000)	0.366 (0.360)	100.000 (100.000)	0.340 (0.329)	100.000 (100.000)	0.448 (0.335)	100.000 (100.000)

items on their respective constructs. Furthermore, the ANN analysis provides a more accurate weighting of the constructs' importance, which is reflected in the low RMSE values for both the training and testing datasets.

The resulting causal model, informed by ANNs, shows proficiency in predicting CLV, customer referral value, customer influencer value and customer knowledge value on the grounds of CPSs, and accounts for 62.70 per cent of the variation in engagement. The two strategy-related constructs, the value co-creation opportunities and engagement, all accurately exert their linear and non-linear effects on customer value for an e-retailer with a predictive power ranging from 81.30 to 88.10 per cent.

The sensitivity analysis, conducted with ANNs, yields evidence that engagement has the highest linear and non-linear effects on all four managerial benchmarks related to customer value, whether measured linearly or non-linearly. This underscores the adequacy of integrating engagement underpinnings when modelling strategic interactive orientations for value co-creation, as argued in seminal theoretical research advocating the S-D logic view of engagement (Hollebeek *et al.*, 2019; Storbacka *et al.*, 2016). The findings also corroborate the mediating role of engagement reported in previous studies (Rodríguez-Ardura and Meseguer-Artola, 2020) and confirm that engagement is a critical driver of customer value in various forms.

Theoretical implications

This study makes five significant contributions to the literature. Firstly, it links focal e-retailing strategies to S-D logic's abstract concepts and the company's superior performance. To do so we unpack the macrofoundational perspective of S-D logic in microlevel constructs related to a customer's perceived opportunities to co-create value (including the customer's prospects to share, participate and interact) and engagement. We also establish robust causal relationships between these constructs and four distinct indicators of value for the company.

The second contribution addresses calls for increased scrutiny of the nomological network of engagement, informed by S-D logic (Hollebeek *et al.*, 2019; Storbacka *et al.*, 2016). We provide the rationale and evidence, from a range of e-retailers, that engagement emerges when processes of customer resource integration are offered to the customer, helping involve them in collaborative interactions that raise value. Therefore, an engaged customer is shown to be communicative, proactive and co-creational, rather than simply reacting to marketing initiatives.

A third contribution complements previous studies on the roots and consequences of engagement – largely focused on the customer-based drivers and effects of engagement (Hinson *et al.*, 2019; Rodríguez-Ardura and Meseguer-Artola, 2020). We offer evidence of companies' strategic choices leading to customer co-creation. Insofar as the customer perceives this co-creation experience as valuable, it drives their own engagement. Additionally, we provide one of the first pieces of evidence about the multiple ways in which engagement can boost the e-retailer's performance.

Literature on S-D logic has tended to centre on how companies facilitate the customer in co-creating value (Vargo and Lusch, 2017). Our research, by contrast, highlights the resources that the customer brings to the company. By virtue of engagement, customers provide many resources that go beyond purchasing, boosting value outcomes for the company.

Our final contribution is in the spotlight on and analysis of non-linear measurements and causal dependencies. We develop a new blended PLS-ANN approach which – in contrast to conventional PLS-ANN two-step methodologies – accounts for non-linearities in both the measurement of the constructs and the structural model estimation.

Managerial implications

Our paper provides e-retailers with a strategic framework that can be adopted to enable superior performance. As an overview, it suggests that, for e-retailers to gain value from customers, they must be ready to refine their strategies and sharpen the art and science of making CPSs – by which their e-shopping environments provide customers with highly efficient ways to purchase and receive the desired products, and with truly personalised services. E-retailers can use the scales measuring CPSs, included in our strategic framework, to identify those elements that, based on their scores, require additional effort and resources.

CPSs are crucial because they direct the company's technological and managerial resources towards achieving workable interactions with customers and offer windows of opportunity to co-create and better engage with the brand. Establishing highly convenient and personalised e-shopping environments can be costly, but the return on investment can potentially maximise profits because it puts the focus on building higher customer value. This greater customer value can be in the form of larger CLV (via repeat purchases, higher up-selling or cross-selling success rates) or consist of more successful new referrals, stronger and further reaching eWOM, or key knowledge about the value proposition that has a monetary impact. For example, customer referrals can help acquire new customers who are hard- or costly-to-reach via conventional marketing communications. Also, as research shows, customers that have been referred often generate more income than customers that are not referred (Schmitt *et al.*, 2011). Furthermore, eWOM propagated by current customers can go viral and influence other consumers and prospects outside the customers' personal social networks (Kumar *et al.*, 2013), and customers can spark worthwhile or fresh ideas for innovation and enhanced service experiences which then positively affect monetary gains.

Suggestions for further research

Our proposed framework can be used with longitudinal data in further research to assess how the impact of CPSs on engagement and value for companies varies over time. It could also be useful to examine whether our framework is valid for different countries and cultures as this might be relevant in explaining how customers engage with the e-retailer. Plus, empirical tests in education environments and non-business entities could assist universities, charities and NGOs in achieving their goals – which could in turn benefit wider society.

Furthermore, future studies could consider not only the role of the customer in co-producing value (by means of sharing knowledge and interests, and dynamic interactions) but also the value co-created in use – emerging when the customer assesses the entire consumption experience, beyond the attributes of the core offerings.

Future research could also test the complex non-linear measurements and relationships in our latent variable model and compare our new PLS-ANN blended approach with PLS-ANN two-step methodologies. This might provide additional hard evidence on the adequacy of the proposed methodological approach to account for non-linearities amongst constructs.

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Appendix

Table A1. Discriminant validity analysis*

	C	P	KS	EQ	D	CA	A	AE	IA	SA	CLV	CRV	CIF	CKV
C	*0.788*	0.734	0.653	0.707	0.675	0.596	0.499	0.644	0.530	0.575	0.606	0.368	0.495	0.559
P	0.822	*0.890*	0.702	0.719	0.704	0.598	0.513	0.647	0.554	0.566	0.677	0.413	0.541	0.602
KS	0.735	0.809	*0.886*	0.800	0.745	0.716	0.613	0.712	0.639	0.607	0.652	0.554	0.600	0.699
EQ	0.730	0.751	0.816	*0.835*	0.812	0.671	0.580	0.694	0.619	0.606	0.673	0.500	0.567	0.665
D	0.719	0.777	0.805	0.833	*0.844*	0.676	0.575	0.699	0.647	0.601	0.681	0.466	0.566	0.642
CA	0.604	0.613	0.784	0.601	0.664	*0.899*	0.769	0.779	0.672	0.693	0.645	0.625	0.704	0.702
A	0.496	0.520	0.666	0.496	0.562	0.799	*0.887*	0.788	0.634	0.645	0.570	0.697	0.737	0.644
AE	0.714	0.735	0.812	0.681	0.739	0.816	0.820	*0.866*	0.718	0.726	0.734	0.608	0.731	0.718
IA	0.602	0.643	0.743	0.617	0.730	0.715	0.667	0.825	*0.878*	0.672	0.668	0.582	0.660	0.681
SA	0.650	0.655	0.703	0.623	0.653	0.729	0.678	0.830	0.782	*0.883*	0.739	0.564	0.651	0.629
CLV	0.615	0.712	0.672	0.649	0.694	0.562	0.475	0.720	0.711	0.805	*0.848*	0.528	0.670	0.689
CRV	0.402	0.464	0.625	0.466	0.504	0.682	0.772	0.677	0.659	0.632	0.481	*0.917*	0.718	0.607
CIV	0.554	0.620	0.688	0.552	0.614	0.763	0.788	0.829	0.763	0.748	0.644	0.806	*0.894*	0.755
CKV	0.614	0.678	0.789	0.677	0.685	0.720	0.681	0.798	0.774	0.710	0.684	0.667	0.844	*0.885*

Notes: *HTMT under the diagonal, square root of the AVE on the diagonal (italic), and correlations between the dimensions above the diagonal

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