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CONCEPTUAL/THEORETICAL PAPER

Customer participation in services: domain, scope, and boundaries

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Abstract Extant service research considers several aspects of customer participation (CP) but lacks a clear and inclusive typology that delineates CP's domain, scope, or boundaries. To address this gap, the authors build on a review of extant literature and propose a typology to classify CP into three categories—mandatory, replaceable, and voluntary. They demonstrate how this proposed typology improves the conceptual and empirical clarity of CP research. More specifically, the authors (1) suggest using "customer participation" to replace other terminologies such as coproduction and cocreation to reduce confusion; (2) conceptualize CP, customer engagement, and customer innovation as related but distinct concepts; (3) use the proposed typology to extend existing conceptualizations, integrate prior empirical research, and reconcile conflicting findings. Building on the enhanced conceptual clarity, managerial implications and future research directions are discussed.

Keywords Customer participation · Mandatory participation · Replaceable participation · Voluntary participation · Cocreation · Coproduction · Customer engagement · Customer innovation

In the past decade, global business giants such as Cisco, Dell, Procter & Gamble, and Starbucks have all embraced the concept of customer participation (CP) in service (Ramaswamy and Gouillart 2010). CP refers to *the extent to which customers are involved in service production and delivery by contributing effort, knowledge, information, and other resources* (Dabholkar 1990). For example, self-served frozen yogurt shops have made their mark in major U.S. cities (*Wall Street Journal* 2013), US Airways has succeeded in shifting 50% of its routine check-in transactions to self-service kiosks and reducing boarding pass printing cost by 96% (*CIO* 2005), and customers are cocreating their own Nike shoes, M&M chocolates, and medical experiences (McColl-Kennedy et al. 2012). Indeed, CP has become the "beating heart" of marketing (*Fast Company* 2012) and "is the future for all of us" (*Forbes* 2014).

Service researchers and practitioners have increasingly embraced the viewpoint that customers are active resource integrators in value cocreation (Arnould 2008; Lusch and Vargo 2014; Vargo and Lusch 2008, 2016). However, a clear delineation of CP's domain and boundaries is still in its early development (Grönroos and Voima 2013). Furthermore, distinct participation roles in service are neither clearly differentiated nor accurately included in the research, resulting in conceptual confusion (Ranjan and Read 2016). For example, most CP research in service focuses on customer roles substituting for service employees' work (e.g., Bendapudi and Leone 2003; Heidenreich et al. 2014), other studies are limited to behaviors that are not essential for service production but optional for service enhancement (e.g., Kellogg et al. 1997), and still other studies mix the two (e.g., Chan et al. 2010; Yim et al. 2012). This conceptual confusion and overlap may explain the inconsistent empirical findings regarding the impact of CP in service production and delivery (Ranjan and Read 2016): while some researchers find that increasing CP has a positive effect on service outcomes (e.g., Chan et al. 2010; Gallan et al. 2013), others find a negative relationship (Bendapudi and Leone 2003; Haumann et al. 2015) or a nonsignificant effect (Ennew and Binks 1999; Wu 2011). Thus, a comprehensive

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typology to define the domain of CP and to synthesize, classify, and differentiate various participation behaviors in diverse service contexts would offer some much-needed conceptual clarity in this domain (Homburg et al. 2016; Mustak et al. 2016).

To achieve these objectives, we answer three important research questions intended to enhance the conceptual and empirical clarity of CP in service research: (1) What is the domain of CP? (2) What are the different participation types? (3) How does the proposed typology relate to, clarify, and integrate the existing body of knowledge? Such added conceptual clarity can help researchers holistically understand and managers strategically leverage the CP phenomenon.

We begin by clarifying CP's domain and comparing terminologies used in the service literature. Then, using the concepts of *who* participates in the service exchange and *what* customers contribute to the service exchange, we classify CP into three categories—mandatory, replaceable, and voluntary. Next, we demonstrate the theoretical and managerial value of our typology by differentiating the concept of CP from other related constructs (e.g., customer engagement, customer innovation, and coproduction), incorporating existing conceptualizations, and reconciling prior mixed empirical findings. We conclude by offering managerial guidelines for service providers and delineating future research directions.

Prior CP research: what is known? What are the gaps?

The conceptualization of CP has evolved over time in the service research (Mustak et al. 2013, 2016). Early studies in the 1970s–1980s focused on its productivity impact. CP was viewed as negatively affecting production efficiency (Levitt 1972) until Lovelock and Young (1979) highlighted the potential productivity gains by outsourcing labor to customers. In the past decade, with the increasing focus on value creation, the conceptualization has expanded to encompass a broad array of customer roles, behaviors, and resources in service provision (Lusch et al. 2010; Ranjan and Read 2016). For example, CP can comprise various behaviors, including design, production, information provision, decision making, and quality assurance (Kellogg et al. 1997; Ranjan and Read 2016; Yi and Gong 2013), and a broad range of resources such as time, effort, information, and knowledge (Arnould 2008; Mahr et al. 2014; Moreau and Herd 2010). Following the typical procedures used in previous reviews of service literature (e.g., Chang and Taylor 2016; Ranjan and Read 2016), we examine the literature related to CP.[1] Table 1 summarizes the empirical articles[2] and offers perspectives on the evolution, content, and structure of existing CP research. Our review of key articles provides evidence of the diversified approach used in the service literature, identifies the gaps in the literature, and supports our conceptual arguments. We next provide a brief review of prior service literature and elaborate the research gaps.

Overarching themes of prior CP research in service

As Table 1 shows, service research on CP has primarily examined (1) antecedents, (2) consequences, and (3) moderators of CP, with a dominant focus on the consequences (e.g., Gallan et al. 2013; Xia and Suri 2014) and less attention given to the antecedents (e.g., Curran et al. 2003; Zhao et al. 2015) or moderators (e.g., Dong et al. 2015; Yim et al. 2012). Three major insights emerge from our review. First, among the limited studies on antecedents, most do not investigate CP directly but rather examine related service concepts such as internal/external exchange (Lusch et al. 1992), do-it-yourself (Bateson 1985), or self-service technology adoption (Meuter et al. 2005). Antecedents of CP include customer specific factors (e.g., technology anxiety, need for interaction) (Meuter et al. 2005), service-specific factors (e.g., threat and usefulness of technology) (Bhappu and Schultze 2006), and interaction-specific factors (e.g., shared vision, interactivity) (Nambisan and Baron 2009; Zhao et al. 2015). Researchers have also examined different facets of CP resulting from these antecedents. For example, Huynh and Olsen (2015) examine antecedents of CP in self-production (e.g., self-preparation of meals). Curran et al. (2003) and Meuter et al. (2005) explore factors driving customers' use of self-service technologies. Nambisan and Baron (2009) and Zhao et al. (2015) investigate motivators of CP in product development and online communities.

Second, regarding the outcomes examined, most are customer outcomes; customer satisfaction, behavioral intention, and service quality are most frequently examined, though willingness to pay, perceived value, and customer loyalty have also been considered. Outcomes pertaining to employees (e.g., employee satisfaction) have only been studied sparsely (e.g., Chan et al. 2010). Research has found positive (e.g., Claycomb et al. 2001), nonsignificant (e.g., Ennew and Binks 1999), and negative (e.g., Dong et al. 2015) effects of CP.

Third, the mixed findings in the service literature could be due to the existence of various boundary conditions. Table 1 shows that researchers have examined the role of customer-specific moderators such as customer readiness (Dong et al. 2015) and innovation orientation (Chen et al. 2011), firm-

[1] The Web Appendix presents the detailed procedures used in the selection of the literature.

[2] We retained more than 80 empirical articles in our pool; this number is comparable to other recent CP review articles (e.g., 35 studies in Chang and Taylor 2016, 121 articles in Mustak et al. 2016, 53 articles in Ranjan and Read 2016). Mustak et al. (2016) include 68 theoretical articles and 45 articles in the business-to-business, government, or other related contexts; excluding this group of articles gives a comparable number of articles to ours.

Table 1 Salient aspects of empirical research related to customer participation

Article	CP role[a]	DV[b]	Term[c]	IV[d]				Moderating variables[e]	Operationalization	Effect of CP[f]		
				M	R	V	CE			Pos.	Neg.	Non.
Aarikka-Stenroos and Jaakkola (2012)	CXT	N/A	CoC	√	√	√	√		Solve problem, diagnose needs, manage conflicts	N/A		
Algesheimer et al. (2010)	IV	INT	CP				√		CP in social community		√	√
Aggarwal and Basu (2014)	IV	SAT	CoC	√					Using fitness facility, exercising, and working out	√		
Amorim et al. (2014)	IV	SQ	CP	√	√				Be present, provide objects and information	√		
Atakan et al. (2014)	IV	EVAL	CP		√			Service stage	Self-production/creation (design/make frame)	√		
Auh et al. (2007)	IV	LOY	CoP		√	√			Info sharing, making suggestions, decision making	√		√
Bendapudi and Leone (2003)	IV	SAT	CPCop		√			Choice, success/failure	Labor and effort		√	
Bettencourt (1997)	DV	CVP	CVP			√	√		Loyalty, cooperation, and participation	N/A		
Bhappu and Schultze (2006)	DV	ODV1	SST		√				Intention to use online ordering system	N/A		
Bone et al. (2015)	IV	ODV2	CP			√	√		CP in problem-solving community	√	√	
Cermak et al. (1994)	IV	SQ, SAT	CP		√				Time and effort	√		√
Chan et al. (2010)	IV	SAT, PERF	CP	√	√	√		Cultural values	Info sharing, making suggestions, decision making	√		
Chen et al. (2011)	IV	INNOV	CoP	√		√	√	Innovation orientation	Cooperation, participation, preparation	√		
Claycomb et al. (2001)	IV	SAT, SQ	CP			√	√		Attendance, information provision, coproduction	√		√
Coker and Nagpal (2013)	IV	WTP, Trust	CUS		√			Firm recommendation	Types of customization	√		
Curran et al. (2003)	DV	CP	SST		√				Use ATM, tele-banking, online banking	√		
Dabholkar and Sheng (2012)	IV	SAT, INT	CP				√	Financial risk	Interact with online recommendation tool	√		√
Dong (2015)	IV	PERC, INT	CP		√			Expectation of CP	Producer, designer	√	√	
Dong et al. (2008)	IV	SAT, INT	CoC		√				Firm, joint, and customer recovery	√		
Dong et al. (2015)	IV	SAT, SQ	CP		√			Customer readiness	Firm, joint, and customer production	√	√	√
Dong et al. (2016)	IV	SAT, INT	CP		√			Attribution, urgency, choice	Firm, joint, and customer recovery	√	√	√
Eisingerich et al. (2014)	IV	PERF	CP				√	Customer expertise	CVP (provide feedback, suggestions)	√		
Engström and Elg (2015)	IV	WB	CP				√		CP in NPD as information source or codeveloper	√		
Ennew and Binks (1999)	IV	SQ, SAT, INT	CP	√	√	√			Info sharing, responsible behavior, interaction			√
Fang (2008)	IV	INNOV, SPD	CP				√	MOD1	CP in NPD as information source or codeveloper	√		√
Fang et al. (2008)	IV	NPD PERC	CP				√	Participation formality	CP in NPD	√		
Fang et al. (2015)	IV	ODV3	OTH1				√	MOD2	CP in NPD	√	√	
Franke et al. (2008)	IV	INT, WTP	SD		√				Self-designed products	√		
Franke et al. (2009)	IV	WTP,ATD,INT	CUS		√			MOD3	Customized products	√		
Franke et al. (2010)	IV	WTP	SD		√			Preference fit, customization	Self-designed products (T-shirts, skis, watches)	√		
Fuchs et al. (2013)	IV	Demand	UD				√	Brand quality	User-designed products for NPD		√	√
Gallan et al. (2013)	IV	SAT, SQ	CP	√	√	√			Info sharing, making suggestions, decision making	√		
Gustafsson et al. (2012)	IV	PERF	CoC				√	Degree of innovation	CP in service innovation	√	√	√
Haumann et al. (2015)	IV	SAT	CoP		√			MOD4	Product assembly, meal preparation		√	
Heidenreich et al. (2014)	IV	SAT	CoC	√	√			Success, CP matching	CP, CP in recovery	√	√	√
Ho and Ganesan (2013)	IV	PERF	CP				√	anticipated value	CP in NPD	√	√	
Hsieh et al. (2004)	IV	ODV4	CP			√	√		Attendance, information provision, coproduction		√	
Hunt et al. (2012)	IV	SAT	CoP		√				CP in community-supported agriculture programs	√		
Huynh and Olsen (2015)	DV	CP	OTH2		√				Self-production (e.g., self-preparation of meals)	N/A		
Kang (2014)	CXT	LOY	CoC				√	MOD5	Social cocreation in NPD (new fashion design)	N/A		
Kellogg et al. (1997)	IV	SQ, SAT	QAB			√			Prep, relationship, info exchange, intervention	√		
Lin and Huang (2013)	IV	NPD PERF	CP				√		CP in NPD as information source or codeveloper	√	√	
McColl-Kennedy et al. (2012)	IV	WB	CoC	√	√	√	√		Patient cocreation styles	√		
McColl-Kennedy et al. (2015)	IV	N/A	CoC	√	√	√	√		CP in residential aged care facility	N/A		
McKeen et al. (1994)	IV	SAT	CP				√	NPD stage	User participation in system design	√		
Melton and Hartline (2015)	IV	INNOV	CoC				√	Involvement	CP in development of service innovation	√		
Mende and van Doorn (2015)	IV	WB	CoP	√	√	√	√		Info share, cooperation, prep, decision making	√		
Meuter et al. (2005)	DV	CP	SST		√				Use phone or Internet to refill prescription	N/A		

Table 1 (continued)

Article	CP role[a]	DV[b]	Term[c]	IV[d]				Moderating variables[e]	Operationalization	Effect of CP[f]		
				M	R	V	CE			Pos.	Neg.	Non.
Mochon et al. (2012)	IV	WTP, INT	CoP		√			Affirmed confidence	Self-assembly of products, self-production	√		√
Moreau et al. (2012)	IV	SAT, WTP	CUS		√			Gift target, brand quality	Customization for oneself and for others	√		√
Moreau and Herd (2010)	IV	EVAL	SD		√			Social comparison	Self-design	√		√
Nambisan and Baron (2009)	DV	CP	CoC				√		CVP in product development, and support	N/A		
Nagpal et al. (2015)	CXT	ODV5	CUS		√				Customized food (pizza, salad)	N/A		
Ngo and O'Cass (2013)	IV	SQ, PERF	CP				√		CP in service innovation	N/A		
Norton et al. (2012)	IV	WTP	Labor		√			Task completion	Self-assembled products	√		√
Ofir et al. (2009)	IV	SQ, SAT, LYT	CP				√		CP in market research		√	√
Randall et al. (2007)	CXT	SAT, EVAL	UD		√				Customized laptop design	√		
Reinders et al. (2008)	IV	ATD	SST		√			Interaction, past experience	Railway ticketing		√	
Revilla-Camacho et al. (2015)	IV	INT	CP	√	√	√	√		CP and citizenship behavior	√		
Roggeveen et al. (2012)	IV	SAT, INT	CoC		√			Failure severity, CP attitude	Knowledge and preference for rebooking tickets	√	√	√
Rosenbaum et al. (2005)	IV	LOY, INT	CP				√		CP in brand community	√		
Schreier et al. (2012)	IV	INT, WTP	UD				√	Familiarity, complexity	User-designed products in NPD	√		√
Siltaloppi and Nenonen (2013)	IV	N/A	CoC	√	√	√	√		Transport items, initiate requests, install packages	N/A		
Stokburger-Sauer et al. (2016)	IV	LOY	CoP		√			Process enjoyment, efficacy	Provide ideas and design travel plans and meals	√	√	
Sweeney et al. (2015)	IV	SQ, SAT, INT	CoC	√	√	√	√		Information sharing and seeking, decision making	√		
Thompson and Malaviya (2013)	IV	EVAL	CoC				√	Cognitive resources, loyalty	CP in designing ads	√	√	√
Troye and Supphellen (2012)	IV	EVAL	CPCop		√			Relevance, outcome quality	Self-production (prepare meal, assemble furniture)	√	√	
Varki and Wong (2003)	IV	PERC, ODV6	OTH3			√	√		CP in voluntary relationship development	√		
Weijters et al. (2007)	IV	SAT	SST		√			Education, age, gender	Use of self-scanning device in retail shopping	√		
Wu (2011)	IV	SAT	CP	√	√	√	√		Loyalty, cooperation, participation		√	
Xia and Suri (2014)	IV	WTP	CoC		√			Service option, expertise	Labor, effort		√	√
Xu et al. (2014)	IV	SAT, INT	CoC		√			Gender, culture	Cocreation in recovery	√		√
Yen et al. (2004)	IV	Attribution	CP	√		√	√	Service interactivity	Share info, responsible behavior, interaction	√		
Yi and Gong (2013)	IV	PERC	CoC	√	√	√	√		CP and citizenship behaviors	√		
Yi et al. (2011)	IV	PERF	CP	√	√	√	√	Similarity, likeability	CP and citizenship behaviors	√	√	
Yim et al. (2012)	IV	SAT	CP	√	√	√		Self-efficacy, other-efficacy	Info share, responsible behavior, interaction	√		
Yoo et al. (2012)	IV	SAT, SQ	CP	√		√			Provide mandatory and extra information	√		
Youngdahl and Kellogg (1997)	IV	SAT, Effort	QAB	√	√	√	√	Type of service	Prep, relationship, info exchange, intervention	√		√
Youngdahl et al. (2003)	IV	SAT, Effort	CP	√	√	√	√		Prep, relationship, info exchange, intervention	√		√
Zhao et al. (2015)	DV	CP	CoC				√		CP in online health communities	N/A		
Zhu et al. (2013)	IV	Switch	OTH5		√	√		Competitive information	Customer recovery of SST	√		

[a] CP Role: *IV* Independent variable, *DV* Dependent variable, *CXT* CP as a study context but not directly examined in the model

[b] DV: *SAT* Satisfaction, *SQ* Service quality, *WTP* Willingness to pay, *INT* Repurchase/purchase/behavioral intention, *EVAL* Product/purchase/experience evaluation, *LOY* Loyalty, *PERF* Performance, *PERC* Perceived value, *INNOV* Innovativeness, *QAB* Quality assurance behaviors, *ATD* Attitude, *WB* Well-being, *ODV1* Adoption of self-service technology, *ODV2* Use of firm support, *ODV3* Stock market abnormal returns, *ODV4* Employee workload, *ODV5* number of healthful and unhealthful items, *ODV6* expectation of firm's effort

[c] Term: Terminology; *CoP* Coproduction, *CoC* Cocreation, *CPCop* CP in Coproduction, *CVP* Customer voluntary performance, *CUS* Customization, *SST* Self-service technology, *SD* Self-design, *UD* User-design, *OTH1* Codevelopment, *OTH2* Self-production, *OTH3* Consumer involvement, *OTH4* Customer recovery

[d] IV: *M* Mandatory CP, *R* Replaceable CP, *V* Voluntary CP, *CE* Customer engagement, more than one tick mark appearing in each row indicates that the effects of more types of CP and/or CE are examined but not separated

[e] Moderator variable:*MOD1* Network connectivity, process interdependence/complexity, *MOD2* Equity governance, tech capability, marketing competitiveness, *MOD3* Preference insights, expression ability, product involvement, *MOD4* Value enhancing strategies, intensity reducing strategies, *MOD5* Task complexity, system complexity, user influence, communication

[f] *Pos.* Positive, *Neg.* Negative, *Non.* Nonsignificant

specific moderators such as employee efficacy (Yim et al. 2012), pricing options (Xia and Suri 2014), and customer self-selection of participation (Bendapudi and Leone 2003). Furthermore, researchers have investigated several contextual moderators such as the type of service industry (Cermak et al. 1994), the extent of service interactivity (Yen et al. 2004), service stage (Atakan et al. 2014), whether the service delivery was a success or failure (Dong et al. 2016; Heidenreich et al. 2014), and customers' cultural value (Chan et al. 2010).

Gaps in CP research

Table 1 reveals major research gaps in the service literature that relate to the lexicon, domain, and boundaries of CP. First, service researchers have used multiple terminologies to denote CP, suggesting a need to identify the convergence and divergence of various terminologies and propose a more consistent terminology. Second, some researchers view their work as residing in the domain of CP but have actually examined other concepts such as customer engagement (e.g., Algesheimer et al. 2010; Eisingerich et al. 2014), suggesting a need to differentiate the two concepts. Third, literature examining new product development and service innovation has also considered customer's role in innovation (e.g., Chang and Taylor 2016). We address the need for a conceptual connection and distinction between CP and customer innovation as well. Fourth, no organizing typology exists to classify different participation behaviors in a systematic manner; as Table 1 shows, empirical research has assessed various customer contributions without a cohesive schema. Fifth, the lack of a clear delineation of CP and its domain may also be responsible for mixed findings in empirical research (Ranjan and Read 2016). A unified typology to explain seemingly disparate empirical results would add clarity to the research. With the evolution of CP research over the years, this is an appropriate time to reflect on what is known about the concept, clarify misconceptions, and move forward with a more precise delineation of CP's domain (Vargo and Lusch 2016).

Our work clarifies the domain of CP and delineates its boundaries by (1) *identifying* what is and is not CP, (2) *delineating* a new typology and *distinguishing* different participation types, and (3) *integrating* with existing conceptualizations and *differentiating* the concept from other constructs (see MacInnis 2011 for the ways of making conceptual contributions; we elaborate on these contributions further in the "discussion" section of the paper).

Terminology related to CP

Researchers have used various terminologies interchangeably to describe CP (see Table 1). These terms include *customer participation* (e.g., Chan et al. 2010; Gallan et al. 2013), *coproduction* (e.g., Haumann et al. 2015; Mende and van Doorn 2015), *cocreation* (e.g., Thompson and Malaviya 2013; Yi and Gong 2013), and others. Several researchers have recognized the confusion in label use. For example, Kohli (2006, p. 291) comments, "I would like to underscore a critical observation … regarding lexicons. Our thinking is … influenced, indeed trapped, by the words we use…. It is crucial that we find new labels … that help us … conceptualize afresh." Although Vargo and Lusch (2006, 2008, 2016) have attempted to change lexicons in their writings to reduce confusion, the inconsistent use of labels is prevalent in the literature. We review the three most commonly used terms in the literature.

Coproduction

"Coproduction" means that customers collaborate with firms to produce the service; thus, "collaboration" and "production" are the two essential elements of this construct (Vargo and Lusch 2008). However, researchers have used this word in a more flexible and inclusive way. On the one hand, some researchers use "coproduction" to denote behaviors that are more than the "production" of the service (e.g., preparing for meetings, designing travel plans Auh et al. 2007, Claycomb et al. 2001). On the other hand, as Meuter and Bitner (1998) classify service production into firm, joint, and customer production, coproduction by definition means joint production or collaboration (Grönroos and Voima 2013); while some researchers concur with this interpretation (e.g., Auh et al. 2007; Bendapudi and Leone 2003), others do not (e.g., Dong et al. 2015; Etgar 2008). For example, Haumann et al. (2015) use coproduction to denote self-production (e.g., self-assembly of products), and Etgar (2008) labels self-service technology as coproduction; both are forms of customer production rather than joint production.

Cocreation

With the shift in emphasis from production to value creation, Vargo and Lusch (2004, 2006) introduced the term "cocreation" and proposed replacing "coproduction" with "cocreation." However, extensive misinterpretation and confusion arose in the literature regarding these two concepts, mostly conceptually equating "value cocreation" with "coproduction." Therefore, Vargo and Lusch (2016) further describe "coproduction" as customers' involvement in the "production" process of service/product offerings, while value "cocreation" has a much broader scope (i.e., "the actions of multiple actors, often unaware of each other, that contribute to each other's wellbeing" Vargo and Lusch 2016, p. 8). In that sense, Vargo and Lusch (2016) view "coproduction" as a contingent concept, subject to various factors that can vary in degrees from low (i.e., firm production) to high (i.e., customer production) (Lusch and Vargo 2014). However, value cannot be created unilaterally (i.e., solely delivered by the firm), and thus

customers are always cocreators of value; value cocreation, unlike coproduction, is *not optional* (Vargo and Lusch 2016).

Despite Vargo and Lusch's (2016) recent conceptual clarification, "cocreation" in the literature has been operationalized somewhat loosely, and consensus is yet to be achieved. Researchers have used "cocreation" to represent *production* of offerings (e.g., online railway ticketing Heidenreich et al. 2014), *creation/design* of products (e.g., designing weight-loss meal plans Xia and Suri 2014), *self-service* (e.g., self-administered bowel screening Zainuddin et al. 2016), *interaction with firms* (e.g., jointly creating value with firms Grönroos and Voima 2013), and *brands* (a form of customer engagement, to be discussed in more detail subsequently; e.g., advertisement design for Doritos chips Thompson and Malaviya 2013), and a combination of them (e.g., cocreation being broad to include coproduction, codevelopment, colearning coadvocacy, and cogovernace in a healthcare context Sharma and Conduit 2016).

Customer participation

Recognizing the lack of consensus in the terminology related to the CP domain, our preferred term is "customer participation", for five reasons:

1. The term "customer participation" has been used most frequently in marketing and related disciplines spread over a long period (e.g., Lovelock and Young 1979; Mustak et al. 2013, 2016); as Table 1 shows, many studies have used this term. Keeping the same terminology allows us to ground our work well in the main body of the literature.
2. The use of "customer participation" has resulted in less confusion than that of other terms (Dong et al. 2015). CP captures the essence of customers' involvement in developing core offerings (Vargo and Lusch 2016), which could be *goods* and *services* in goods-dominant logic or *service* in service-dominant logic (i.e., applied knowledge and skills). It is broader than *coproduction*, which is a goods-dominant lexicon and has a relatively narrow association with the *production* of offerings (Vargo and Largo 2016). It also captures our research objectives better than *cocreation* because we are interested in understanding participation behaviors that are contingent on factors and can vary in magnitude; conversely, value cocreation states that value is always cocreated (Vargo and Lusch 2016).
3. Researchers (e.g., Grönroos and Voima 2013) have questioned the connotation of "co" in coproduction and cocreation as to whether it covers the situations of customer self-service; CP does not have such a limitation and is more inclusive in its ability to cover all forms of service interactions (i.e., firm, joint, and customer production). Furthermore, it offers the flexibility to operationalize the construct as dichotomous (whether a customer participates or not), ordinal, or continuous (different degrees of CP).
4. The term "customer participation" is capable of depicting both active and passive participation. For example, participation can be actively labor-intensive (self-check-in at the airport, furniture assembly) or passive with less labor (being present at the hairdresser); likewise, it can be information-intensive (brainstorming vacation plan ideas) or passive with minimal information (mandatory personal data for tax return filing).
5. "Customer participation" is also a term that can be easily visualized by general readers who may not be well-versed in the nuances of different terminologies in service literature, while being sufficiently broad from a researcher's perspective and operationally meaningful from a practitioner's angle.

Having identified the gaps in the literature and the most appropriate terminology that can meaningfully represent this domain, we next propose our typology, explain its scientific objectives, and discuss the building blocks of our typology using theoretical insights from the literature.

Proposed typology

Researchers have suggested the need to develop mid-range theories to bridge the gap between the abstract general theory as advanced by service-dominant logic and the empirical findings in CP research (Brodie et al. 2011b; Vargo and Lusch 2016). Mid-range theories could take different forms (Brodie and Gustafsson 2016). They could involve conceptual frameworks followed by research propositions and hypotheses (e.g., Chan et al. 2010; Yim et al. 2012); or typologies developed to describe a phenomenon (e.g., Greer 2015) with a particular focus on enriching the conceptual meaning and clarity of key constructs (Brodie et al. 2011b). Service research has benefited from both approaches for theory development, and we adopt the latter in our research. Furthermore, a typology also advances knowledge along the "delineating" and "differentiating" dimensions, two of the ways conceptual contributions can be made to a discipline (MacInnis 2011). Therefore, in this research, we develop a typology by delineating the domain of the key construct, CP, and integrating insights from multiple perspectives including the extant service literature and the emerging service-dominant logic (as Brodie et al. 2011b advocate).

CP behaviors are service exchange activities to integrate resources and create value (Lusch and Vargo 2014). Fundamental to service exchanges are two elements: (1) *who* makes the exchange (i.e., the actor) and (2) *what* is exchanged (i.e., the content) (Vargo and Lusch 2004, 2008). Lovelock (1983) classifies services according to *who* the recipient of the service is and *what* the nature of the service act is. Bitner

et al. (1997) classify services according to the magnitude of the customer action (combining the "who" and "what" dimensions). Bolton and Saxena-Iyer's (2009) 2 × 2 matrix includes "degree of CP" as one dimension encompassing both *who* and *what* aspects, albeit from a narrower perspective of interactive services.

We develop a typology to examine the boundary of resource integration along two dimensions: (1) *who* refers to the actor of the service exchange and entails whether only customers can perform the task or the firm can also do so (Edvardsson et al. 2014; Vargo and Lusch 2016), and (2) *what* refers to the nature of the task, in terms of whether the task is mandatory or optional for service provision. Our typology answers a fundamental resource deployment question about whether there is a choice in terms of *who* can perform the task and *what* is performed (Kozlenkova et al. 2014). These two dimensions of service exchange help us arrive at a conceptually appealing and operationally meaningful typology, as shown in Fig. 1.

Three types of CP

Mandatory CP Referring to activities/resources that can only be performed/provided by customers (who) and are essential for service delivery (what) (Bitner et al. 1997), mandatory CP (upper left in Fig. 1) is necessary for services to be produced or delivered. The mandatory input, tangible and/or intangible (Dong and Sivakumar 2015), can be people (e.g., customer's presence for a haircut), objects (e.g., clothes for tailoring), information (e.g., providing information for computer repair), and preference (e.g., customer choosing the cable package) (Lovelock 1983).

Replaceable CP Depicted in the upper right of Fig. 1, replaceable CP refers to customer activities/resources that are essential for service provision (what) but can also be performed by the service provider (who) (Lovelock and Young 1979); these are traditionally provided by service employees (Mohr and Bitner 1995) and are employee in-role behaviors (Bolton and Saxena-Iyer 2009). For example, a customer can substitute for an employee to wash cars, file tax returns, or develop tour plans. Similar to mandatory CP, replaceable CP can be tangible (e.g., providing modem for Internet setup) or intangible (e.g., the effort of repairing Internet connections) (Fließ and Kleinaltenkamp 2004). Replaceable CP has attracted the most attention because of its relevance for productivity gain and revenue enhancement (e.g., Yim et al. 2012).

Replaceable CP relates to tasks that are typically performed by service providers, although occasionally the tasks could also be performed by others (e.g., agents, intermediaries). We adopt a broad view of "service providers," and hence these other entities such as agents and intermediaries also represent service providers. Although it is possible to visualize some actions voluntarily performed by other customers to facilitate a service transaction (e.g., recommending a particular flavor of ice cream, helping out grocery self-checkout), we argue that these tasks are not required for service provision (e.g., they are not at the core of service exchange), and as such they do not belong to replaceable CP. Furthermore, replaceable CP could include situations of self-service, as many self-service

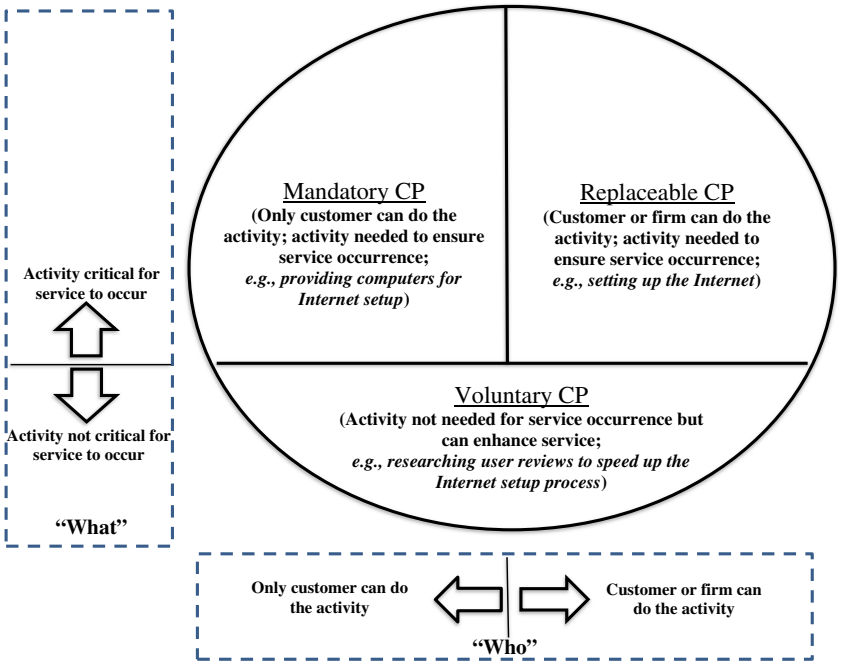

Fig. 1 Types of customer participation (CP)

activities can be potentially, and are indeed could have been previously, performed by service providers. For example, an employee can perform grocery checkout or a customer can do so; luggage check-in can be done by the service provider or the customer using the kiosks. In both cases, some part of the work has already been automatized and outsourced to machines. Now customers replace employees to provide the rest of the work, and the service can be delivered without employee involvement. In other words, replaceable CP could involve customer activities using SST (e.g., making online car reservation, using grocery self-checkout) or not using SST (e.g., replacing air filter, designing a tour plan).

Voluntary CP As captured by the lower half of Fig. 1, voluntary CP refers to activities and resources that are *not* essential for service delivery (what) (Kellogg et al. 1997) but are performed at customers' discretion to improve their service experience (who) (Bettencourt 1997). These activities represent extra roles (MacKenzie et al. 1998), such as researching (e.g., reviewing travel tips to improve tour design), intervening (e.g., monitoring the drywall repair process), and quality boosting (e.g., using conditioner to improve carpet quality) (Yi et al. 2011).

Conceptual distinctions Although researchers have debated whether mandatory customer activities should even be considered part of CP (Bitner et al. 1997) due to their passive nature (with replaceable and voluntary CP being more active), our three-pronged typology supports inclusion. A more inclusive approach provides theoretical rigor and managerial completeness; it implies, for example, that managers should not neglect the facilitation and management of mandatory CP, which serves as the minimal requirement for successful service provision (Lusch and Vargo 2014), but also treat it differently from other participation types because of its passive nature. Our typology is also consistent with previous research that gives replaceable CP the most attention in light of its implications for productivity gain and value creation. Moreover, although researchers have assessed voluntary CP separately (e.g., Kellogg et al. 1997) or mixed it with other participation behaviors (e.g., Mende and van Doorn 2015), our consideration of it as a distinct entity recognizes its independent role and interconnection with other participation roles.

The highlighted conceptual distinctions in our typology do not mean that these three participation types cannot coexist; depending on service contexts, they may co-occur at times. For example, in people-processing services when customers are the recipients (e.g., haircut), mandatory CP often takes place during the entire service process (Lovelock 1983). However, customers could provide voluntary CP (e.g., researching hairstyles that best fit their facial features) and/or replaceable CP (e.g., doing the hair styling) at different touchpoints of their decision journey (Court et al. 2009). Possession-processing services (e.g., Internet setup) often require customers to provide tangible objects for services but may not require their presence during service provision; thus, mandatory CP may occur at the beginning of the process (e.g., providing computer for Internet setup), while voluntary CP (e.g., reading reviews to speed up the setup) and replaceable CP (e.g., setting up the Internet) could occur later. Thus, at different touchpoints of consumer decision journeys across various services, the three types may occur simultaneously or separately. The conceptual distinction in our typology offers a mechanism to identify different participation types and evaluate their individual and joint effects.

As Grönroos and Voima (2013) argue, further research is necessary to understand the focus and nature of customers' role in value creation. Our typology contributes by further clarifying the value creation and cocreation process. According to Grönroos and Voima (2013), value, defined as *value-in-use*, implies that the customer creates and assesses value in a longitudinal and experiential process of usage; the customer is the creator of value and controls the experiential value creation process, while the service provider may join this process as a cocreator of value. Our conceptualization is consistent with their customer-centric depiction of value-in-use. Next, we discuss how our typology differentiates CP from other constructs, builds on and improves existing conceptualizations, and reconciles empirical findings.

Differentiating CP from customer engagement and customer innovation

Distinguishing CP from customer engagement Figure 2 delineates the interrelationships among the three constructs. Customer engagement, as represented by the bottom right semicircle in Fig. 2, means that customers are jointly responsible for the management, ownership, and equity of a company's brand (Bolton 2011). The concept represents customer behaviors that are often discretionary, go beyond particular transactions, and focus on the interaction with the firms and brands (van Doorn et al. 2010). For example, Threadless co-opts talented customers to submit new product ideas (Chang and Taylor 2016), Nokia invites customers to test prototypes in real-use settings (Chang and Taylor 2016), and Harley-Davidson motivates its customers to join the brand community and interact with other customers (Algesheimer et al. 2010).

Whereas customer engagement is similar to voluntary CP in that both represent voluntary behaviors and are not essential for service provision (Brodie and Hollebeek 2011), it differs from CP (the bottom left semicircle in Fig. 2) in several ways. First, CP focuses on benefiting customers (e.g., making suggestions to improve their own investment portfolios) (Bendapudi and Leone 2003), while customer engagement focuses on benefiting the firm/brand and/or other customers

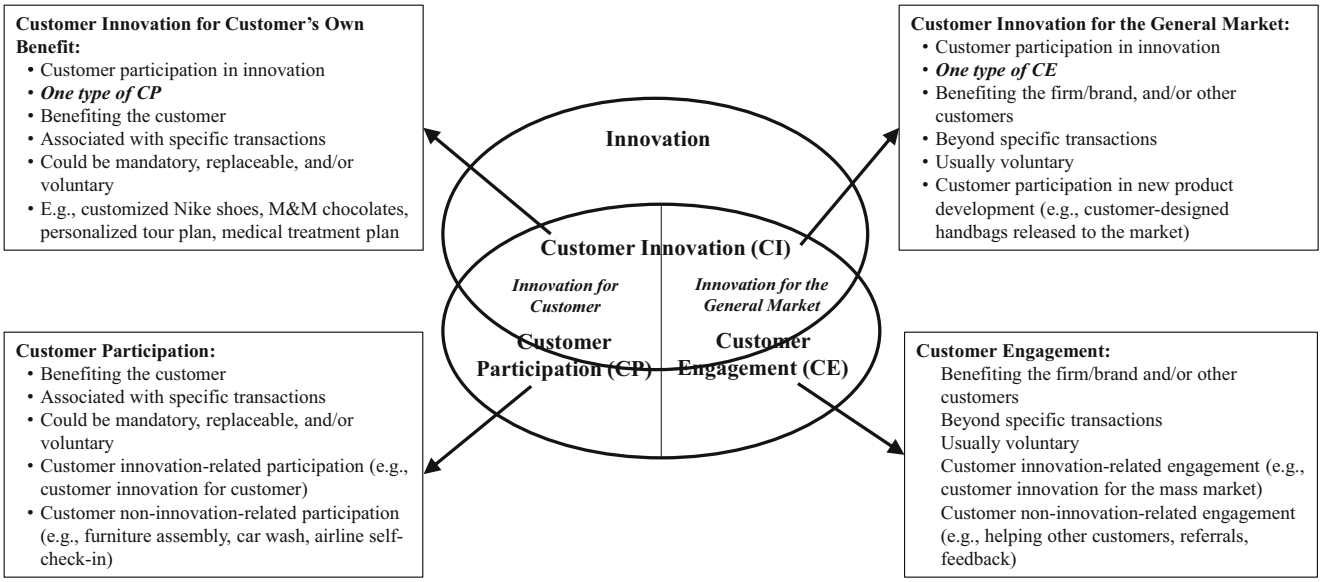

Fig. 2 Interrelationships among customer participation (CP), customer engagement (CE), and customer innovation (CI)

(e.g., providing feedback to improve overall consulting process for the bank) (Brodie et al. 2011a). Second, CP takes place during the service transaction and entails the customers' own service consumption (Xie et al. 2008), while customer engagement goes beyond the service transaction and includes indirect customer contributions (Hammedi et al. 2015; Pansari and Kumar 2016).[3] For example, user-designed new Lego products belong to customer engagement, while self-designed Nike shoes reflect CP (*Forbes* 2013). Third, customer engagement typically includes voluntary behaviors (Brodie et al. 2011a), while CP can be mandatory, replaceable, or voluntary per our proposed typology. Figure 2 illustrates the distinction between the two constructs, showing the conceptual and practical reasons for understanding them as distinct entities. Although some customer engagement behaviors may benefit the customer (e.g., winning Doritos' "Crash the Super Bowl Ad Contest") and/or originate from a specific purchase (e.g., sharing reviews on Yelp about a dining experience), the customer action takes place after the purchase/consumption of the service; the beneficiary of the action is the firm, the brand, and/or other customers; and the outcome goes beyond a particular transaction (Brodie and Hollebeek 2011). Despite the conceptual distinction between the two concepts, existing literature tends to use them interchangeably. Our review of the literature (see Table 1) indicates that many empirical studies using terms such as CP, coproduction, and/or cocreation actually examine customer engagement (e.g., Algesheimer et al. 2010; Ho and Ganesan 2013; Rosenbaum et al. 2005) and several studies mix customer engagement with CP (e.g., Claycomb et al. 2001; Mende and van Doorn 2015; Sweeney et al. 2015), adding further confusion when comparing empirical findings across CP research. For example, Claycomb et al. (2001) operationalize CP as readiness to help other customers and making suggestions to firms; likewise, Bettencourt (1997) views promoting the firm and suggestions to improve the firm as CP behaviors. Therefore, to be consistent with previous research (e.g., Chan et al. 2010; Dong et al. 2015; Yim et al. 2012), the domain of CP in our research covers any customer behaviors that are for participating customers' own consumption and are part of the focal transactions. Customer engagement is not part of the CP domain and thus is not the focus of our research. Treating them as distinct constructs unpacks their respective domains, brings additional clarity to the literature, and facilitates the conceptual development of both constructs.[4]

Distinguishing CP from customer innovation Innovation, also known as "new product development," "new service development," and "service innovation," refers to the creation and development of new ideas that offer incremental and/or radical newness to existing offerings (Berry et al. 2006).

[3] We adopt the commonly used conceptualization of customer engagement in the literature (e.g., Brodie and Hollebeek 2011; van Doorn et al. 2010), which regards customer engagement as going beyond specific service transactions. This differs from Pansari and Kumar (2016), who view it as including both direct (e.g., purchase) and indirect (e.g., referral, feedback) customer contributions that go beyond transactions. Furthermore, customer engagement has recently been discussed in the broader context of customer experience and customer relationship management (e.g., Venkatesan 2017; Harmeling et al. 2016; the 2017 special issue of JAMS on "Understanding and Managing Customer Engagement through Customer Relationship Management").

[4] The conceptual distinction between CP and customer engagement herein is built on the need to differentiate their respective domains and the empirical confusion exhibited in prior research. Our conceptual separation does not address the different mechanisms involved in their respective effects on service outcomes and the resulting differences in such outcomes; such process details are beyond the scope of our research and are left for future explorations.

Traditional innovation literature typically examines *firm* innovation—activities dominated by the firm without much customer involvement (e.g., Crawford and Di Benedetto 2008). Concepts such as voice of the customer (Griffin and Hauser 1993) and the incorporation of lead users (von Hippel 1986) have appeared in innovation literature. However, only recently has customer innovation, which more formally denotes and incorporates *customers'* role and participation in innovation and new product development, attracted increasing research attention (Chang and Taylor 2016; Cui and Wu 2016). As Fig. 2 shows, customer innovation represents the overlap between innovation and CP and between innovation and customer engagement. Depending on the beneficiary of the innovation, customer innovation could be further divided into two types: customer innovation for customers' own benefit and customer innovation for the mass market. The former belongs to CP, and the latter belongs to customer engagement. More specifically, *customer innovation for customers' own benefit* refers to CP in innovation for customers themselves and is associated with specific transactions. For example, customers customizing their own products or services (Dong et al. 2015; Franke et al. 2009) are innovations that bring incremental improvements from standardized product offerings. As the products are developed during a given transaction and for customers' specific use, they fall in the domain of CP. Conversely, *customer innovation for the mass market* indicates customer engagement in innovation that benefits the firm, the brand and/or other customers and often goes beyond specific service transactions. Research examining customers' role in the development of new goods and services (e.g., Chang and Taylor 2016; Cui and Wu 2016) mostly belongs to this domain. Furthermore, customer innovation for customers' own benefit could include mandatory, replaceable, and voluntary customer effort, while customer innovation for the mass market usually involves only voluntary CP.

In addition, a significant body of innovation research resides in the business-to-business contexts and covers various types of innovation collaboration (e.g., business customers collaborating with suppliers to create upstream innovations). Customer–firm interactions in business-to-business contexts have different dynamics than those in business-to-customer contexts, and CP literature has traditionally focused on the latter; therefore, at this stage of the research evolution, our retained business-to-customer focus provides needed clarity to advance current thinking. Furthermore, it is important to note that we do not include every article in customer engagement or innovation in Table 1, as they are not the focus of our research; instead, the table includes some articles that fall in the domain of customer engagement or customer innovation but use CP-related keywords in their document titles and provide particular insights on types of customer inputs. We retain these selected articles (e.g., Fang et al. 2008; Fang et al. 2015) to illustrate the need for theoretical distinctions of their respective domains.

In sum, as Fig. 2 shows, while CP and customer engagement can be clearly separated from a conceptual perspective, the broader innovation phenomenon overlaps with both concepts. Customer innovation could be either CP or customer engagement, depending on the beneficiary of the innovation (the focal customer or the mass market). Furthermore, CP and customer engagement are not limited to innovation: CP could include non-innovation-related activities (e.g., grocery self-checkout) in which customers are not responsible for designing but for producing and delivering the service (Dong 2015; Xia and Suri 2014); likewise, customer engagement could include activities that are not related to innovation (e.g., helping other customers) (Brodie et al. 2011a). Our delineation of the connections and distinctions among the three constructs offers conceptual clarity and advances theoretical development.[5]

Links to existing CP research

Prior CP conceptualizations Realizing the theoretical ambiguity in the CP domain, several researchers have attempted to examine the conceptual elements of CP (Ranjan and Read 2016). Next, we highlight a few conceptualizations that are relevant to CP classifications and articulate how our research builds on them and adds further clarity. Table 2 provides a direct and detailed comparison of these works with our research.[6] All these works have contributed to the conceptualization of CP using different paths. We view our typology as contributing to this overall dialogue while trying to integrate the insights from these prior studies. In particular, we structure our discussion along three interrelated themes: (1) inclusiveness of the domain, (2) differentiation among participation types, and (3) mixing of CP with other constructs.

In terms of the types covered, Lengnick-Hall (1996), Halbesleben and Buckley (2003), and Dong and Sivakumar (2015) focus on replaceable CP; Kellogg et al. (1997) examine voluntary CP; Bitner et al. (1997) and Mustak et al. (2016) focus mostly on mandatory and replaceable CP; and Chang and Taylor (2016) examine CP in new product development, a type of customer engagement. Although Bolton and Saxena-Iyer (2009), Mustak et al. (2013), and Ranjan and Read (2016) discuss all three types, they do not differentiate among them

[5] Traditional innovation literature incorporates different sets of outcome variables from the CP research. For example, constructs such as speed to market, effectiveness of research-and-development collaboration, degree of newness to the market, and financial efficiency serve to evaluate innovation outcomes; CP research focuses on variables (e.g., customer satisfaction, willingness to pay) that are related to individual customers and particular transactions. We revisit the nature of the outcome variables subsequently.

[6] Although we primarily focus on articles summarized in Table 2, we also include other conceptual articles in the broader CP domain to augment the themes arising from the table.

Table 2 Comparison of CP conceptualizations

	Bitner et al. (1997)	Bolton and Saxena-Iyer (2009)	Mustak et al. (2013)	Chang and Taylor (2016)	Mustak et al. (2016)	Ranjan and Read (2016)	Our typology
Key purpose	Classified services according to levels of CP	Classified interactive services by degrees of technology and degrees of CP	Summarized the conceptualizations and outcomes of CP in prior literature	Conducted a meta-analysis of CP's role in NPD	Focused on customer inputs, drivers, and outcomes of CP, and management approaches	Examined cocreation and developed a measurement index for cocreation	Examines the domain of CP and proposes a classification scheme to increase conceptual and empirical clarity of CP
Terminology used	CP as the basis for service classifications	CP; coproduction and cocreation as subsets of CP	CP	CP in NPD	CP management	Cocreation; coproduction as a subset of cocreation	CP; differentiates CP, cocreation, and coproduction
Approach	Divided services into *low CP* (mere presence), *medium CP* (information provision), and *high CP* services (coproduction)	Conceptualized CP to include *coproduction* (in-role behaviors) and *cocreation* (extra-role behaviors)	Reviewed the evolution of CP conceptualizations: (1) *productive labor*, (2) *various customer roles* in service creation, and (3) *product development*	Viewed CP as customer's provision of needs- and solution-based knowledge	Classified customer inputs into (1) *labor and task*, (2) *information and knowledge*, and (3) *behaviors*	Classified cocreation into *coproduction* and *value-in-use*; subdivided *coproduction* into knowledge, equity, and interaction	Classifies CP into M, R, and V according to the criticality of the service provision and the entity involved in service provision
Included/ omitted components of CP	Focused on M and R but not V (e.g., customer voluntary behaviors to improve transactions are not part of their conceptualization)	Mixed M, R, V, and CE; considered interactive services only	Included M, R, V, and CE without differentiation	Focused on CP in NPD only (e.g., participating in NPD for the firm is CE)	Focused mostly on M and R but not V (e.g., *labor and task* focuses on M and R)	Included M, R, V, and CE without differentiation (e.g., *coproduction* of knowledge, equity, and interaction could be M, R, or V)	Includes M, R, and V, and distinguishes the three from one another and from CE
Overlap/ mixing of CP components	Mixed levels of CP and types of CP (e.g., *low CP* is similar to M; *high CP* is similar to R; *medium CP* could be M, R, or V)	*Coproduction* is similar to R (e.g., self-checkout); *Cocreation* is a mix of M, R, V and CE (e.g., participating in online games could involve M, V, and CE; online banking could be R; developing business solutions could be R and V)	Mixed M, R, V, and CE *Productive labor* is similar to R; *Various customer roles* could be a mix of M, R, and V (e.g., being a partial employee could be R; quality evaluator could be V; information exchange could include M, R, or V); *Product development* is CE	N/A	Mixed M, R, V, and CE *Labor and task* mixes M (e.g., physical presence) and R (e.g., self-service); *Information and knowledge* could be M, R, or V; *Behaviors* mix V (e.g., responsible for self-service) and CE (e.g., helping other customers)	Mixed three types of CP (e.g., *knowledge sharing* could be M, R, or V)	Differentiates M, R, and V (e.g., information sharing could be differentiated as M [basic information for tax return], R [information for decision making], and V [sharing investment tips learned elsewhere])
Incorrect inclusion of non-CP activities	N/A	Mixed CP and CE when conceptualizing *cocreation* as extra-role behaviors	Considered CE (e.g., *product development*) part of CP	CP in NPD (e.g., *product development* for the firm) is CE	*Behaviors* of CP mostly refer to CE (e.g., offering support to fellow customers in weight-loss programs is CE)	Mixed CP and CE (e.g., user-designed new products, ad campaigns, and assisting other customers belong to CE)	Separates CP and CE (e.g. user-designed new Lego products belong to CE, while self-designed Nike shoes reflect CP)

Table 2 (continued)

	Bitner et al. (1997)	Bolton and Saxena-Iyer (2009)	Mustak et al. (2013)	Chang and Taylor (2016)	Mustak et al. (2016)	Ranjan and Read (2016)	Our typology
How our typology addresses the limitations	Enables the differentiation among types of CP for each level of CP	Clarifies the domains of CP, coproduction, and cocreation; covers interactive and non-interactive services	Differentiates three types of CP; separates CP from CE	Goes beyond NPD (CE) and adopts a more inclusive view of CP	Differentiates three types of CP in each category of customer input; separates CP from CE	Clarifies CP, coproduction, and cocreation; differentiates three types of CP; separates CP from CE	N/A

CP Customer participation, *M* Mandatory CP, *R* Replaceable CP, *V* Voluntary CP, *CE* Customer engagement, words in italics are quoted verbatim from prior research articles

further; moreover, Bolton and Saxena-Iyer (2009) limit their examination to interactive services only. All of these articles recognize the variety of participation behaviors and attempt to classify them, but the classifications stay at the descriptive level and result in some overlap based on our typology.

- Bitner et al. (1997) classify services according to participation magnitude; low CP services are similar to mandatory CP, and high CP services mirror replaceable CP. Superimposing their work with our typology adds clarity by separating the participation magnitude and type.
- Mustak et al. (2013) document the evolution of CP conceptualizations over time and consider a wide variety of customer roles (e.g., partial employee, information exchanger, quality evaluator); however, their inclusion is more descriptive in nature, and integrating theirs with our typology could explain more nuances (e.g., partial employee could be replaceable CP, quality evaluator could be voluntary CP, information exchanger could be a combination of all three types).
- Bolton and Saxena-Iyer (2009) regard coproduction as in-role behavior, which is similar to replaceable CP (e.g., grocery self-checkout), and cocreation as extra-role behavior. Our typology could provide additional clarity to their cocreation examples. For example, online banking could be replaceable CP, developing business solutions could be a combination of replaceable and voluntary CP, and online gaming could be a combination of all three types.
- Ranjan and Read (2016) examine value cocreation by dividing it into coproduction and value-in-use. They further classify *coproduction* (which is similar to our definition of CP) into knowledge, control, and interaction. Applying our typology to their classification could further differentiate the types of *coproduction* (e.g., knowledge could be mandatory, replaceable, or voluntary CP).
- Mustak et al. (2016) categorize participation into (1) labor and task performance, (2) information and knowledge, and (3) behaviors. According to our typology, each of the three categories can involve any or all three participation types. Despite these differences, we acknowledge that our approach takes an in-depth view of the CP components, while Mustak et al. follow a different path by focusing more on the antecedents and consequences and how organizations should manage participation.

Relatedly, these articles have also included non-CP behaviors that could be more appropriately described as customer engagement or innovation per our categorization in Fig. 2.

- Mustak et al. (2013) consider customer role in new product development part of CP. As illustrated in Fig. 2, most of Mustak et al.'s examples (e.g., participation in

product design and development) pertain to customer innovation for the mass market, which falls in the domain of customer engagement.

- Chang and Taylor (2016) examine customer participation in new product development and conduct a meta-analysis to understand the contingency factors that moderate its effectiveness. Our research could offer further nuances to their study. For example, if a business customer's participation in the product development is for its own benefit during a specific transaction, we consider this part of CP (customer innovation for customer's own benefit); needs-based knowledge could be mandatory CP, while solution-based knowledge could be replaceable CP; if the participation benefits the company (e.g., user design of new products), the behavior is customer engagement (customer innovation for the mass market). Chang and Taylor include both types of product development, ending up mixing mandatory, replaceable, and voluntary CP as well as customer engagement. Thus, although Chang and Taylor make an important contribution to customer innovation, our typology adds increased clarity by further differentiating the types of customer innovation.

Prior empirical findings Prior research either discusses the three participation types in isolation (e.g., Bendapudi and Leone 2003; Dong et al. 2015; Roggeveen et al. 2012) or mixes them without differentiation (e.g., Gallan et al. 2013; Yim et al. 2012), indicating the need for a typology to synthesize and differentiate CP behaviors (Table 1). Further, as mentioned previously, many of these CP studies actually examine customer engagement (e.g., Dabholkar and Sheng 2012) or innovation (e.g., Chen et al. 2011; Gustafsson et al. 2012), and mix the three concepts (e.g., Mende and van Doorn 2015; Yi et al. 2011).

A close examination of the empirical operationalization of CP (see Table 1) provides evidence of the lack of a clear demarcation of its dimensions and a distinction among the different concepts. For example, Kellogg et al. (1997) focus on customer quality assurance behavior, which is primarily voluntary CP with some mixing with replaceable CP (e.g., information exchange) or customer engagement (e.g., relationship building). Likewise, Chan et al. (2010) and Yim et al. (2012) define CP as customers actively sharing information, providing suggestions, and making decisions. Here, sharing information could be *mandatory* (e.g., basic information for tax preparation), *replaceable* (e.g., information sharing for decision making), or *voluntary* (e.g., offering investment tips learned from online forums); making suggestions (e.g., focusing on energy-related investment options) is largely *voluntary* to enhance service experience, and decision making (e.g., choosing Vanguard's mutual fund) could be *replaceable*. Yi and Gong (2013) and Yi et al. (2011) consider various CP behaviors (i.e., information seeking and sharing) and customer citizenship behaviors (i.e., feedback, advocacy, helping, and tolerance). Although participation behaviors in their work largely belong to replaceable CP, some behaviors are mixed with mandatory CP (e.g., mandatory information sharing); likewise, citizenship behaviors are similar to voluntary CP in our typology, but some behaviors are mixed with customer engagement (e.g., advocacy, helping others). Similarly, Sweeney et al. (2015) divide CP into three categories: focal firm–based, beyond focal firm, and self-generated activities. In doing so, they mix mandatory CP (e.g., compliance), replaceable CP (e.g., decision making), voluntary CP (e.g., healthful diet), and customer engagement (e.g., relationship with other customers).

The overlapping with innovation is also worth noting. Some studies examine user-designed new products for the general market (e.g., Schreier et al. 2012), which belong to customer innovation for the mass market (a type of customer engagement), while other studies evaluate self-designed products for customers' own use (e.g., Coker and Nagpal 2013), which belong to customer innovation for the customer (a type of CP).

Theoretical ambiguity underlying the domain of CP may explain mixed prior findings (Ranjan and Read 2016). As Table 1 shows, while an overwhelming number of studies find a positive effect of CP on service outcomes, a nontrivial number of studies show a negative relationship or nonsignificant effects. Table 3 is derived from Table 1 based on our typology.

As Table 3 shows, findings related to replaceable CP are mixed: positive (20 effects), negative (11 effects), or nonsignificant (9 effects). Moreover, because much of the work mixes various participation types, our analysis further indicates that the combination of mandatory and voluntary CP is likely to result in positive outcomes; however, the addition of replaceable CP may lead to mixed effects (largely due to the conflicting nature of replaceable CP). Combining mandatory CP and replaceable CP leads to two positive, one negative, and one nonsignificant effect; combining voluntary CP and replaceable CP results in two positive and one nonsignificant effect; a combination of the three yields three positive and one negative effects.[7] This analysis implies that mandatory CP and voluntary CP are more likely to provide desirable outcomes; replaceable CP, though conferring productivity gains, is a double-edged sword, suggesting the need to assess their individual and joint effects to increase empirical clarity. These conflicting results are further exasperated by researchers mixing CP with other concepts.

Table 1 also suggests that other moderating variables may account for the mixed effects. For example, previous research suggests that CP is more likely to yield positive outcomes if

[7] These counts do not include those studies in Table 1 that examine customer engagement only (e.g. Algesheimer et al. 2010; Dabholkar and Sheng 2012) or mix customer engagement with some part of CP (e.g., Bettencourt 1997; Chen et al. 2011).

Table 3 Summary of previous empirical findings using our proposed typology

	Number of effects	Type of CP			Effects of CP		
		M	R	V	Positive	Negative	Nonsignificant
Effect of a given CP type	1	×			1		
	40		×		20	11	9
	1			×	1		
2-way CP combinations	4	×	×		2	1	1
	1	×		×	1		
	3		×	×	2		1
3-way CP combination	4	×	×	×	3		1
Total number of effects	54				30	12	12

Number of effects is used rather than number of articles, as some articles include multiple effects. For example, Heidenreich et al. (2014) find positive, negative, and nonsignificant effects of CP on satisfaction. Studies that do not provide quantitative results are not included in the analysis; nor are articles that examine customer engagement or mix customer engagement with CP included

CP Customer participation, *M* Mandatory CP, *R* Replaceable CP, and *V* Voluntary CP

customers have greater ability (Yim et al. 2012), are given a choice to participate (Bendapudi and Leone 2003), have collectivist cultural orientations (Chan et al. 2010), or identify more positively with their role in service (Dong et al. 2015); if customers perceive greater employee efficacy (Yim et al. 2012) and similarity (Yi et al. 2011); and when participation occurs in the design stage (rather than the production stage) (Dong 2015) and when the participation task has been completed (Norton et al. 2012).

The inconsistent findings could be complicated further by the type of outcomes examined. Table 4 summarizes the previous empirical results by the different outcome variables. For example, satisfaction and behavioral/purchase intentions produce more variability than other outcomes; in contrast, the effect of CP on service quality has been mainly positive, with only two nonsignificant effects when moderating factors are taken into consideration (e.g., customer readiness Dong et al. 2015; type of service Cermak et al. 1994). In general, CP has presented positive effects on willingness to pay; a negative effect identified pertains to the situation when customers contribute labor and participate in self-production (e.g., Xia and Suri 2014). Research also finds positive effects for self-production (e.g., Mochon et al. 2012; Norton et al. 2012); when customers customize the product offerings (e.g., Coker and Nagpal 2013; Franke et al. 2009; Franke et al. 2010), a more consistent positive effect appears. In addition, research has reported a nonsignificant effect when incorporating moderators (e.g., self-affirmed confidence reduces the positive effect of CP on willingness to pay Mochon et al. 2012, the positive effect of CP on willingness to pay only exists when the self-production task is completed Norton et al. 2012). Thus, while CP might not necessarily hurt service performance (i.e., service quality) and financial value (i.e., willingness to pay), it may have a mixed impact on customers' emotional responses (i.e., satisfaction) and behavioral intentions.

Discussion

Theoretical contributions

As mentioned previously, this article makes theoretical contributions to several of the dimensions MacInnis (2011) identifies. We achieve *identifying* by clearly articulating what is and is not CP, *delineating* by our three-part typology and by offering improved conceptual and empirical clarity of the CP construct, *summarizing* by providing a comprehensive literature review, *differentiating* by distinguishing three participation types and separating CP from customer engagement and customer innovation, and *integrating* by relating our typology to existing conceptualizations, reconciling empirical results, and connecting with other concepts.

As mentioned previously, CP covers the domain of coproduction but not vice versa and therefore, we propose the use of CP to denote coproduction. By definition, it is appropriate to name a participation behavior as coproduction only when a true joint production takes place, that is, both "co" (joint collaboration) and "production" dimensions are present in a behavior (e.g., customers working with the employees to set up Internet or do landscaping). As to self-service or "self-production" (e.g., customer self-assembly of furniture, self-checkout of groceries), "coproduction" is not the appropriate word due to its constraint of the prefix "co." Further, "coproduction" does not denote creation-type activities (e.g., customizing a handbag) due to its association with "production." Therefore, CP is a more

Table 4 Summary of prior empirical findings for different outcome variables

Outcomes	Positive effects	Negative effects	Nonsignificant effects	Number of effects
Satisfaction	20	7	11	38
Behavioral intention	13	4	8	25
Service quality	8	0	4	12
Willingness to pay	8	1	3	12
Others (e.g., evaluation, performance, well-being)	32	13	10	55
Number of effects	81	25	36	142

Number of effects is used rather than number of articles, as some articles include multiple effects; furthermore, as Table 4 focuses on comparing the effects by different outcome variables, the effects on each outcome variables are counted separately. For example, Dong et al. (2008) find a positive effect of CP on satisfaction and a positive effect of CP on behavior intention. These are counted as one positive effect on "satisfaction" and one positive effect on "behavioral intention" in Table 4 but counted as "one" positive effect in Table 3 because the objective in Table 3 is on examining the direction of the effects

inclusive term than coproduction that accommodates various situations involving customers (e.g., self-production or joint production, creating or producing a product).

Prior research has largely focused on examining the impact of participation magnitude (Bitner et al. 1997). By integrating this perspective with our typology, we suggest that each type of CP can have different degrees of participation (e.g., low vs. high). By keeping participation magnitude and participation type as separate dimensions, we can provide a more fine-tuned assessment of CP. There are multiple ways to operationalize CP types. Researchers could (1) treat it as a moderator on the link between participation magnitude and outcomes (results would indicate relative effectiveness of different participation types); (2) use the CP type as a contextual variable and examine its effect, ensuring to avoid mixing other participation types (insights would be especially useful if a firm has decided to focus on one type of CP in terms of resource allocation and managerial attention); or (3) manipulate different types of CP in an experimental setting and compare their direct and interactional effects on outcomes (results would provide industry-specific insights into which CP types are more appropriate for certain industries).

Our typology provides an inclusive structure to analyze CP in three components, but it is equally applicable if one or more components are absent or occurring together. For example, what happens when a customer has flexible travel dates for tour planning? What if a customer is not sure if a clothing item fits, and the service provider must help decide? In both cases, the line between mandatory and replaceable CP can become blurred. Regardless of how the customer views the service, our typology provides a mechanism for visualizing these various paths.

Managerial implications

Table 5 provides implications of our three-part typology to (1) service design and management and (2) service measurement and control, supplemented with real business examples. As mentioned previously, the minimum requirement for mandatory CP is ensuring an easy and error-free process so that customers can perform their jobs correctly. Therefore, the firm's task is straightforward—ensuring good system design for customer input. For replaceable CP, the mixed previous findings as shown in Tables 1 and 3 suggest that more careful elaboration is necessary to decide the extent to which firms should give customers the opportunities to define, control, and manage their brands (van Doorn et al. 2010). The moderators identified in Table 1 indicate that this decision is contingent on various factors such as customer expertise, cost, and risk considerations (Payne and Frow 2014). Voluntary CP is perhaps the least understood but has the greatest potential in value creation. By its very definition, voluntary CP is challenging to proactively control or even design; however, practices in managing extra-role employee behaviors may provide additional insights to encourage voluntary CP (Hollebeek et al. 2016). Marketing strategies to develop emotional connections and bonds between customers and the firm are effective means to promote voluntary participation behaviors (Pansari and Kumar 2016).

The conceptual distinction proposed in our typology further highlights the need to figure out the operational details of various CP types. Establishing suitable data collection and monitoring mechanisms through marketing analytics would enable service providers to make better resource allocation decisions across the three types of CP. As our literature review indicates that few studies have examined mandatory and voluntary CP, internal research is especially crucial for these two types. Treating CP, customer engagement, and customer innovation as different organizational activities and examining their relative impacts would also enable more nuanced approaches to manage them differently. Furthermore, as Table 4 shows, the effects of CP differ for different

Table 5 Illustrative managerial implications of the proposed typology

Type of CP	Examples	Implications for service design and management	Implications for service measurement and control
Mandatory CP	• Turbo Tax offers step-by-step data entry process and allows customers to scan their tax forms, making the mandatory customer input simple and error free. • US airways adds a cardless access feature allowing customers to identify themselves by entering names or flight numbers (instead of carrying loyalty cards); this new feature boosts kiosk usage by 25%.	• Make it easy for customer input • Clearly articulate customer's responsibility • Build system to allow customers to self-recover failures	• Measure time taken • Assess customer effort required • Measure failure rate, and identify frequent customer failures and bottlenecks
Replaceable CP	• Wal-Mart has made aggressive use of self-checkout kiosks to reduce labor costs; however, the drop in store traffic and increased customer complaints have forced Wal-Mart to slow the move to this trend. • American Express and Ford effectively design their interaction with customers by enabling easy decision making in replaceable CP (e.g., allowing customers to rapidly and visually sort options with each click when finding credit cards or configuring cars). • People who travel frequently are more accustomed to using technologies than others. Hilton Hotels installed kiosks in the airports, so that guests could check in to their hotel room while waiting for their baggage.	• Make resource allocation decisions between customers and the firm based on various considerations • Perform segmentation analysis to understand target customers' profile and design appropriate replaceable CP tasks • Build customer profiles to understand who is willing to participate and who is not • Provide participation options for different customer profiles	• Use previous customer behavior data to establish customer profile • Collect behavioral, demographic, or psychographic information of customers using longitudinal data from customer panels to understand segment-specific strategies • Use big data analytics to build customer profiles
Voluntary CP	• Vanguard provides detailed investment performance information online for customers who are interested in learning more about financial investment options. • Expedia collects detailed information about travel destinations for interested customers. • Cisco offers online forum for users to discuss and seek solutions for their own problems from other fellow customers.	• Leverage experienced customers who are more capable of providing voluntary CP • Offer mechanisms to encourage and reward voluntary behaviors • Build emotional bonding to promote voluntary CP	• Record customer purchase behavior to identify touchpoints in the decision process where customers are more willing to exert voluntary effort • Identify the type of customers who are more likely to provide voluntary effort
Typology as a whole		• Develop protocols for coding each type separately and in combination	• Develop cost and profit allocation mechanisms for different components of CP

CP Customer participation

outcomes. This variability across outcomes implies that organizational objectives (e.g., whether the goal is to increase customer satisfaction, willingness to pay, or service quality) will play a key role in contextualizing the research findings. Along these lines, the need to more effectively understand and measure customer contributions to marketing in general is being increasingly advocated by researchers (e.g., Harmeling et al. 2016).

Future research directions

Table 6 provides exemplars of new research questions in two interrelated aspects: (1) increasing the depth of CP research to understand its structure, components, and characteristics and (2) increasing the breadth of CP research to understand it in a broader context.

Increasing the depth of CP research Endeavors could be made along different directions to further enrich the theoretical insights into the key construct. Given the scarcity of research that specifically examines the roles of voluntary CP and mandatory CP, research dedicated to understanding their individual effects would be extremely valuable. As Tables 1 and 2 show, several studies have mixed mandatory CP and/or voluntary CP with replaceable CP or customer engagement. Therefore, it is important to recognize the existence of various participation types, be more accurate in operationalization,

Table 6 Future research agenda derived from our proposed typology

Themes	Future research avenues
Increasing the depth of CP research (Enhancing the theoretical understanding of CP)	Drivers of CP • What customer-, provider-, and context-specific factors are more likely to lead to M, R, and V, respectively? Performance impact of CP • How do M, R, and V affect performance outcomes differently, with a particular focus on the individual effect of M and V? • How does such effect vary by the type of outcomes (e.g., customer, employee, operational, financial outcomes)? • What is the cost and psychological impact of M, R, and V? Nature of CP • How do M, R, and V interact with one another? • What is the impact of co-occurrence of M, R, and V? • Are the effects of M, R, and V synergistic or contradictory? Examining factors moderating the impact of CP • How do M, R, and V behave differently over the different service stages or customer touchpoints during the consumer decision journey? • How do M, R, and V vary by customer-specific (e.g., expertise, technology readiness) or provider-specific (reputation, service facility ambience, market leadership) factors? • How does time pressure moderate the impact of M, R, and V? • How do success and failure of the service experience moderate the impact of M, R, and V? Are there systematic differences in customer assessment as well as an actual impact of different types of CP when the service meets expectation, exceeds expectation, and falls below expectation?
Increasing the breadth of CP research (Understanding the linkage of CP with other constructs, entities, and disciplines)	Linking CP with other theoretical constructs • What are the similarities and differences between CP and other related constructs (e.g., customer engagement, customer involvement, customer innovation, customer experience)? How can these similarities and differences be leveraged to understand the individual and integrative impact of these different phenomena? • How does the three-part CP typology relate to other research streams (e.g., new product development, user design) Integrating CP with service systems and institutions • What are the key CP dynamics in networks and service systems? • How do types of CP behave differently in different (e.g., dyadic, triadic) interactions and across institutions? • How can our typology be generalized to cover the activities of the entire set of actors in a system? • How does CP in service systems work in different risk scenarios (e.g., in highly regulated industries when the risk of wrongful effect of CP is very high) Examining the connection of CP research with other disciplines • What are the implications of M, R, and V to health care (e.g., emergency treatment vs. routine treatment) and education (education for children with special needs, undergraduate education vs. graduate education vs. executive education)? • What are the linkages of M, R, and V to operations management (e.g., how do M, R, and V affect operational efficiency of customer call centers)? • What are the linkages of M, R, and V to human resource management (e.g., how do employee outcomes of CP vary by types of CP in activities such as wellness programs)? • What are the linkages of M, R, and V to management information systems (e.g., how to use database support systems to better manage different types of CP)? • What are the linkages of M, R, and V to management (e.g., entrepreneurial activities are fundamental to value creation in ecosystems of resource integration; how can these activities better inform the management of M, R, and V)?

Table 6 (continued)

Themes	Future research avenues
	• How does the typology inform and/or connect with organizational behavior and social psychology literature (e.g., change management, employee training, mentoring)?
	• How do participation and engagement research in other disciplines (e.g., civic engagement, political engagement, and employee engagement) inform the three types of CP in the marketing field?
	Examining the role of technology on CP
	• How can emerging technological trends be used to foster resource integration, and thus CP? The emerging treads include social commerce (e.g., via Instagram), live-stream video (e.g., Android/iOS's Meerkat), mobile marketing (e.g., mobile apps), wearables (e.g., Google Glass), and location-based marketing (e.g., Foursquare).
	• How can big data be used to better understand and manage M, R, and V? For example, how does online monitoring of CP enhance the mechanisms of different types of CP? How can the technology be used to obtain fine-tuned measurement of the various CP types and their impact (e.g., can the time the customer spends in inputting mandatory information be reduced and the resulting time savings be used to enhance customer selection of online options?)
	• What is the impact of social media on CP performance? Does the evolving social media landscape change the relative necessities of M, R, and V and/or their impact?

CP Customer participation, *M* Mandatory CP, *R* Replaceable CP, and *V* Voluntary CP

and then direct special effort to understand the unique role of voluntary CP and mandatory CP.

Research could augment our typology to explore how other customer-related factors (e.g., customer ability Dong et al. 2016; Yim et al. 2012), service-related factors (e.g., interactive vs. noninteractive services Meuter et al. 2005), task-related factors (e.g., knowledge- vs. labor-based tasks Mahr et al. 2014), and external factors (e.g., culture Chan et al. 2010) might drive the different types of CP. Table 4 provides some preliminary insights into the variance of CP effects across different dependent variables. Hence, research could examine how the effects of the three CP types might vary and how such effects might further vary by types of outcomes. The interrelationships among the three warrant further examination. For example, how do the three participation types interact with one another? Are their effects synergistic or contradictory? Does cumulative customer satisfaction affect voluntary CP?

Increasing the breadth of CP research Further research could examine the linkage of CP to other theoretical constructs, entities, disciplines, and technological developments. First, given the conceptual overlap with other constructs (e.g., customer engagement, customer innovation, customer experience), it would be fruitful to further explore the similarities and differences among them and understand their individual and integrative effects; integrating CP research with the emerging field of organizational frontlines (e.g., Singh et al. 2017) will also advance the services research. Second, our typology follows previous CP research and focuses on the customer–provider relationship; further research might go beyond this dyad to incorporate other generic actors; for example, Vargo and Lusch (2016) take an ecosystem view by examining value cocreation beyond firm–customer exchanges. Third, research in other disciplines such as sociology, political science, organizational behavior, and psychology has also discussed participation and engagement of different agents (e.g., civic engagement Adler and Goggin 2005, employee engagement Christian et al. 2011), engagement in arts and culture Minkiewicz et al. 2016); they share a common emphasis on voluntary participation and resource investment. Building on the system view (Edvardsson et al. 2014; Vargo and Lusch 2016), future elaborations are necessary to understand its implications to other disciplines, such as operations management (e.g., service failure and recovery), HR (e.g., employee outcomes resulting from different participation types), and management information systems (database support systems for service design) (Skålén et al. 2015). Fourth, technology and marketing are intertwined in many respects; further research could explore how emerging technology trends such as social commerce (e.g., via Instagram), mobile marketing (e.g., mobile apps), wearables (e.g., Google Glass), and social media could foster resource integration in CP.

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