17. Temporality of customer engagement in service innovation: a theoretical model

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INTRODUCTION

Given the growing dynamism observed in many contemporary markets, a growing need exists for companies to be viewed as *innovative* to excel in terms of their corporate performance. Innovative companies are typically perceived to design, develop and/or implement offerings characterized by some level of newness, whether radical or incremental (Ordanini and Parasuraman 2011). In turn, the achievement of a firm's reputation for being 'innovative' has been heralded to better engage customers, drive sales increases, enhance market position and lead to superior financial returns, with a case in point being Apple (Fast 2018). In this chapter, we focus on a particular aspect of customer engagement (CE), namely the role of its temporality or evolution over time (Chandler and Lusch 2015) in affecting the service innovation (SI) process. We hereby recognize that CE's expressions and dynamics are expected to vary throughout the SI process' different stages, which despite its intuitive appeal, remains a subject of scant investigation to date.

Theoretically, our analyses are underpinned by innovation's shifting role, which while traditionally led and controlled by firms, is transitioning to more open or shared innovative forms (e.g. co-innovation, presumption, etc.; Xie, Bagozzi, and Troye 2008). In open innovation, companies outsource innovation ideas and processes to other actors external to the organization, including customers, the general public or others (Chesbrough 2003). This growing trend is illustrated by Eurostat's (2015) reported 70 percent of study participants using customer-provided data (e.g. ideas) in their innovation processes. Though the importance of customer input in innovation activities is acknowledged, many companies still lack the knowledge to meaningfully integrate this insight into their innovation processes (Kimbell 2015), as explored in this chapter. Based on a service-dominant (S-D) logic-informed perspective, we integrate the notions of CE, SI and ensuing value cocreation, which remain largely disparate in the literature to date (Hollebeek, Srivastava, and Chen 2019; Ordanini and Parasuraman

2011). By integrating these notions in a conceptual model, we aim to derive enhanced insight into the leveraging of customer input to enhance the various stages of the SI process. In the model, we also outline the roles adopted by different SI actors in focal SI sub-processes. Given the exponential growth of digital service, our focus is on the role of online interactions and technologies to collect, analyze and integrate customer-based and customer-provided information in their SI processes.

CE has been variously defined as "the intensity of customer participation and connection to an organization's offerings and activities" (Vivek, Beatty, and Morgan 2012, p. 127) or the level of a customer's cognitive, emotional, behavioral and social investment into their brand interactions (Hollebeek, Srivastava, and Chen 2019, p. 166). CE therefore goes beyond the transaction to encompass any type of customer–firm interaction (Harmeling et al. 2017). It is characterized by the consumer's brand-related thought, affect and behaviour, including brand-related word-of-mouth, recommendations, helping other customers, blogging or writing reviews (van Doorn et al. 2010). Here, we contend that CE's manifestations can occur as a result of the SI process and its relevant sub-stages. If properly recorded, interpreted and integrated, these can act as an important source of market intelligence. In addition to a positive valence, where higher CE generates increasingly positive outcomes (e.g. customer loyalty), CE can also be negative (Hollebeek and Chen 2014). Yet, even in this case, the input provided by unsatisfied customers can offer valuable information for ameliorating the firm's offerings or (e.g. customer-facing) processes. However, little remains known about CE's development over time (Hollebeek, Glynn, and Brodie 2014; Viswanathan et al. 2017).

The objective of this chapter is to investigate temporal dimensions of CE and its relevance in the context of SI. To achieve this objective, we next review the key literature on CE and SI, followed by the development of a conceptual model. Based on the model, we deduce implications for further research and marketing practice.

THEORETICAL BACKGROUND

To develop our understanding of the role of CE in the SI process, we draw from two theoretical perspectives: S-D logic (Vargo and Lusch 2008) and the temporal trajectory framework sourced from human–computer interaction (Benford and Giannachi 2008). Given these perspectives' shared focus on interactivity-enabled value creation, we observe their suitable theoretical fit that leads us to their joint adoption. We next explore these perspectives and address their theoretical link to CE.

The Three-Way Interface of S-D Logic, CE and SI

S-D logic proposes service as central to any exchange, whether for business purposes or otherwise, with goods being complementary to service exchange (Vargo and Lusch 2016). Hollebeek, Srivastava, and Chen (2019) propose an S-D logic-informed model of CE that views resource integration as a required antecedent of CE and cocreation as a key CE outcome. In addition, authors such as Ordanini and Parasuraman (2011) and Lusch and Nambisan (2015) use S-D logic as a frame to better understand SI, and Hollebeek and Andreassen (2018) highlight the importance of exploring the integrative interface of CE and SI. According to these views, SI results from focal resource-integrating activity, which creates new resource configurations and thereby paves the way for SI's development. In line with S-D logic, key additional components of this perspective include the following:

- *Service platforms*: Structures of (in)tangible resources that facilitate the undertaking of interactions (Breidbach, Brodie, and Hollebeek 2014).
- *Value cocreation*: The extraction of actor-perceived value from focal SI-related (e.g. customer–firm, employee–firm) interactions.
- *Service ecosystems*: Networked actors connected through service exchange, which serves as the environment within which SI takes place. While some ecosystem actors may make direct SI-related contributions, others may make indirect contributions (e.g. by virtue of their connections to other actors).

Customers will tend to take on differing roles in the value cocreation process (e.g. by differing in their degree of SI-related proactivity or investment). S-D logic identifies three broad categories of customer roles in this regard, including *ideator*, *designer* and *intermediary* (Lusch and Nambisan 2015). As *ideators*, service beneficiaries (recipients) offer insight to the firm (e.g. about their service-related needs or preferences), thereby offering value-in-context (Chandler and Vargo 2011). As *designers*, actors combine existing knowledge and reconfigure available resources to modify existing or create new services, thereby reflecting incremental and radical innovations, respectively. Third, as *intermediaries*, actors make non-obvious connections across various ecosystem constituents or different ecosystems, thereby creating value for themselves and/or other actors (Lusch and Nambisan 2015). While these roles focus on different SI-related aspects or tasks, an actor may take on more than one of these roles, either simultaneously or in close temporal

succession of one another (Hollebeek et al. 2018). Consequently, integrating S-D logic with the notion of temporal trajectories is expected to offer a useful approach for better understanding and leveraging CE in the SI context.

Temporal Orientation

Time and its representations are central to the depiction of (business) processes, which tend to comprise a pre-specified series of steps unfolding in a particular sequence to generate particular desired outcomes. To illustrate, the SI process has been viewed to cover anywhere between four to eight steps (in the literature consulted), which typically starts with the identification of a new need (i.e. something that is currently missing) based on which ideas are generated to address that need. Alternatively, the SI process has been viewed to commence with the inception of relevant new ideas, which are subsequently refined and tested to explore their (e.g. technical) feasibility and market potential (Zomerdijk and Voss 2011). While literature-based consensus regarding the specific number and content of particular SI steps is lacking, we observe the existence of a key underlying temporal evolution of SI process sub-steps, which offers an important theoretical foundation for this research. Froehle and Roth (2007) propose a generic process of new service development consisting of the following four stages:

- The *design stage*, consisting of the creation of new service concepts, the formal definition of objectives for the new service offering and initial concept testing.
- The *analysis stage*, evaluating the strategic, financial and market-performance potential of the proposed concept. If the concept is promising, it might be authorized to go to the next stage.
- The *development stage*, including the development of the new service offering, the development of needed systems and the infrastructure stage.
- The *launch stage*, bringing the offering to the market. It includes promoting, customer training and the gathering of marketing data and customer feedback. It is often followed by post-launch analysis that provide feedback to service offering improvements.

Several of the activities within this process include or might include customers, such as in idea generation and evaluation during the concept creation, concept testing, customer training and customer feedback on launched services.

Benford and Giannachi (2008) propose a temporal trajectory framework that comprises three types of trajectories: (a) *canonical trajectories*, representing temporal mappings envisaged by actors (i.e. *ex ante* orientation); (b) *participant trajectories*, which are mappings of actors' (e.g. users') actual perception of the (in this case, SI) activity and (c) *historic trajectories*, which are retellings of past trajectories that are synthesized from recorded data (i.e. *ex post* orientation). These ideas exhibit conceptual correspondence with the work of Chandler and Lusch (2015), which outlines CE's past, present and future dispositions. Therefore, during interactions in any of Benford and Giannachi's stages, the customer may conceive of relevant past, present or future SI-related ideas, thereby predominantly reflecting CE's cognitive dimension initially. However, these SI-related thoughts may in turn trigger focal emotions or behaviours, thereby potentially spilling over to CE's emotional and/or behavioural facets (Bowden et al. 2017) and demonstrating the interrelatedness of CE's different dimensions.

In Benford and Giannachi's (2008) and Benford et al.'s (2009) perspective, a *trajectory* represents an actor's phenomenological journey, which includes particular *time*, *space*, *roles* and *interfaces*. These authors' notion therefore exhibits similarity to the customer experience, which covers the customer's entire (e.g. purchase-related) journey (Lemon and Verhoef 2016). Trajectories are often used to analyze and describe actor experience (Velt, Benford, and Reeves 2017), of which CE represents a component sub-part (i.e. focused on a single interaction; Hollebeek, Srivastava, and Chen 2019). As such, trajectories facilitate the development of insight into actor engagement and experiences. Here, we use the three outlined types of trajectories to better understand customer-based processes in the broader SI process.

To derive further insight into CE during the SI process, a better understanding of customers' (or in a broader sense, beneficiaries') interaction-related dynamics is needed. In this vein, McCarthy and Wright (2004) proffer the existence of the following six sub-processes when interacting with digital technology: anticipating, connecting, interpreting, reflecting, appropriating and recounting. Similarly, Chandler and Lusch (2015) describe service exchange as a dynamic process comprising four phases, including stimulation, replication, synchronization and dissipation, thereby again reflecting CE's temporality. Throughout the customer's broader lifecycle, Bijmolt et al. (2010) also propose the stages of customer acquisition, customer development and, ultimately, CE, while O'Brien and Toms (2008) suggest the existence of sustained engagement, disengagement and possibly re-engagement at different stages of the customer relationship. When new innovations are introduced, re-engagement becomes more likely as the customer's engagement may have become dormant prior

to its introduction (Brodie et al. 2013). Therefore, CE lapses may be classified as temporary or permanent in nature and may occur consciously (e.g. intentionally) or less consciously.

Methodologically, there are several ways to examine the unfolding of temporal processes, including by drawing on longitudinal or retrospective data (Karapanos, Martens, and Hassenzahl 2012). Longitudinal studies aim to explain focal phenomena and examine their evolution over time (Bolger and Laurenceau 2013). Extrapolation may also be used, where predictions are made as to the future development of particular variables. Depending on the number and interval of their measurements, these studies can be divided into the following three categories: pre-post designs (i.e. two measurements), true longitudinal approaches (i.e. over two measurements) and intensive longitudinal studies (i.e. five or more measurements) (Bolger and Laurenceau 2013). Longitudinal studies can also take micro- (e.g. one hour), meso- (e.g. several weeks) or macro-perspectives (e.g. [a] generation[s]) (von Wiliamowitz-Moellendorf, Hassenzahl, and Platz 2006). Finally, in retrospective studies, participants are asked to report their perceptions over the period in which they used to use a service.

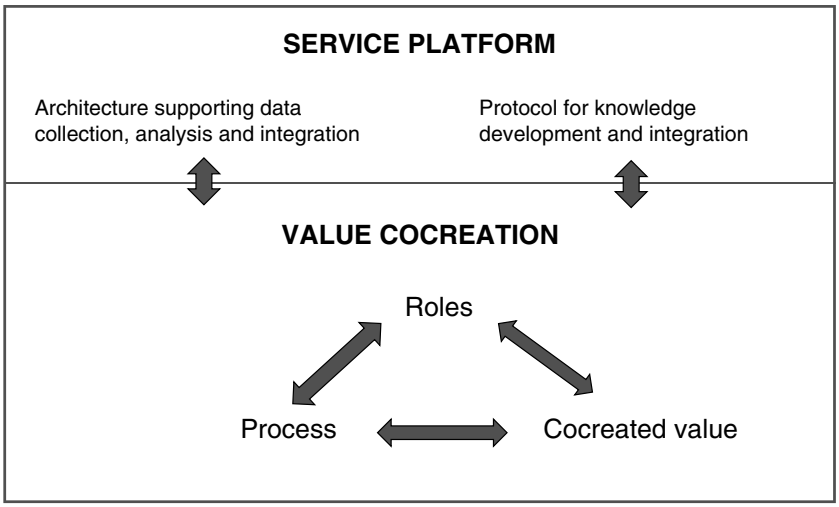
CE AS AN SI DRIVER

Drawing on S-D logic-based innovation and CE insight (Lusch and Nambisan 2015) coupled with Benford et al.'s (2009) temporal trajectory framework, we integrate CE's temporality and SI in a conceptual model (Figure 17.1). The model comprises the following two complementary, interdependent elements: *service platforms*, which enable the *value cocreation process*, as discussed.

Though we acknowledge the existence of multiple actors in the service process, we focus the model on service providers and their customers (beneficiaries). We further discuss the framework's component concepts in the sub-sections below. Definitions of the model's components are also provided in Table 17.1.

Service Platform

In the model, the service platform offers a structure that facilitates actor interactions with resources and/or other actors (Hollebeek 2017). The service platform consists of an *architecture* and a *protocol*. The *architecture* provides different methods and tools for collecting, analyzing and integrating data, such as web diaries, online surveys/diaries, field studies or netnography (Kozinets 2006).



Note: Adapted from Lusch and Nambisan (2015).

Figure 17.1 CE in SI

Table 17.1 Table of definitions

	Definition
Service platform	*Service platform*: A structure facilitating actors' interaction with resources and/or other factors (Hollebeek 2017). *Architecture*: Platform's structural characteristics, such as resources (Lusch and Nambisan 2015) and resource density (Lusch, Vargo, and Tanniru 2010). *Protocols*: Institutions governing the collection, storage, usage, analysis and interpretation of data (Vargo and Lusch 2016).
Value cocreation	*Value cocreation:* Jointly creating value through interactivity (Vargo and Lusch 2008). *Roles:* Roles that actors play in the resource integration, such as service provider (Lusch and Nambisan 2015), service beneficiary and knowledge beneficiary. *Cocreated value:* Jointly created value through interactivity (Vargo and Lusch 2008). *Process:* The processes and activities that underlie resource integration and incorporate different actor roles within the system (Lusch and Nambisan 2015).

These need to be designed and implemented based on key user-centric considerations, such as ease-of-use, required (technological) skill (i.e. operant resource) level, personalization level or privacy and security-related issues. Acceptable or desired levels of these variables will in turn facilitate customers' willingness to participate in organizational SI-related tasks (e.g. by offering their product-related feedback or ideas; Chasanidou and Karahasanovic 2017). However, while customers may prefer tools that are easy to use and unobtrusive, service providers tend to appreciate tools that yield the most valuable input at minimal cost. Consequently, the service platform (architecture) needs to be designed in such a way to balance these differing, and potentially competing, interests. The value of specific SI tools may also differ across the different stages of the SI process (e.g. though brainstorming may be more useful at the ideation stage, customer surveys stimulating innovation refinement may hold greater value at subsequent stages of the SI process). Firm-based flexibility and adaptability are therefore pivotal.

Whereas platform architecture enables data collection, exchange and integration, *the protocols of exchange* define the rules governing these processes, thereby directly linking to Vargo and Lusch's (2016) notion of *institutions* (e.g. rules, norms, guidelines) and supporting the adoption of our S-D logic frame. Specific service platforms will be conducive to the collection of particular data (e.g. direct customer satisfaction surveys versus indirect log files charting customer shopping habits). In both cases, protocols for data gathering and integration should be clearly defined, comprehensible to all actors involved and compliant with relevant institutions (e.g. [inter]national laws, regulations). Internal protocols should also clearly specify appropriate guidelines for data storage, analysis and interpretation, which serve as a key foundation for subsequent SI development. Correspondingly, data security, ownership and intellectual property are key issues.

Service platforms are important in terms of integrating CE into the innovation process. For example, an e-commerce store can not only act as a platform for commercial transactions but also facilitates the collection and integration of customer-based usage data, ideas, complaints or suggestions, which can be useful inputs into the firm's SI process. A firm's successful operation of an open innovation approach requires both flexible structures that facilitate data collection, storage and usage as well as clear, transparent institutions guiding organizational knowledge development. Online platform architecture and protocols should therefore enable a high ease-of-use level of customer contributions to service improvement and define desired data collection, storage, usage and interpretation.

Value Cocreation

Value cocreation represents an actor's perceived jointly created value (with other actors) through interactivity (Vargo and Lusch 2008). As such, a particular perceived value cocreation level will always occur after any interaction, whether intended or unintended, whether consciously or less so, and so on. Value cocreation represents an important component of our model, given its nature as a key outcome of the effectiveness and efficiency of focal platform architecture and protocols (i.e. the more effective, the higher the level of cocreated value). The interdependence between these three-way elements is continuous and dynamic: On one hand, service platforms provide a technological, contextual framework for enacting value cocreation. On the other, the cocreation process should provide relevant feedback that permits improvements (e.g. refinements, revisions) to be made to the platform's architecture and protocols.

Understanding CE's integration into the SI process requires not only considering the platform(s) enabling this integration but also the nature of the integration process. Specifically, one should understand different actor *roles*, the *process* encompassing their activities and the resulting *outcome(s)*. Here, we consider three main actor roles: *Service provider* (e.g. firm), *service beneficiary* (e.g. customer, user) and *knowledge beneficiary* (e.g. a research group). Our notion of *service beneficiary* is broader than Lusch and Nambisan's (2015) *ideator*, *designer* and *intermediary* as it extends to encompass customers' behavioural or demographic data (e.g. resulting from their online activity).

In the model, we consider a *process* as a series of activities designed to transform inputs into outputs (Zelle 2010). During this process, CE is activated by customers investing particular operant and operand resources into their brand or firm interactions (e.g. through knowledge sharing; Hollebeek, Srivastava, and Chen 2019). CE is enabled by prior resource integration, where customers choose and assimilate their desired resources with a view to adopting these in particular processes. An activity of resource integration is, for example, integrating knowledge on a user's behaviour into an online service adapted to the user's need. This activity will transform the user's log files (an input) to the user interface specially tailored for this user (an output). Here, CE's temporality is affected by a range of factors, including the actor's prior experience with the specific resource-integrating activity, their interest in the focal process, their perceived amount of time available for this process, and so on. In addition, the particular type of temporal trajectory discussed earlier will also exert an effect. Consider, for example, a customer using a virtual reality (VR) application allowing them to browse and shop for items in a virtual

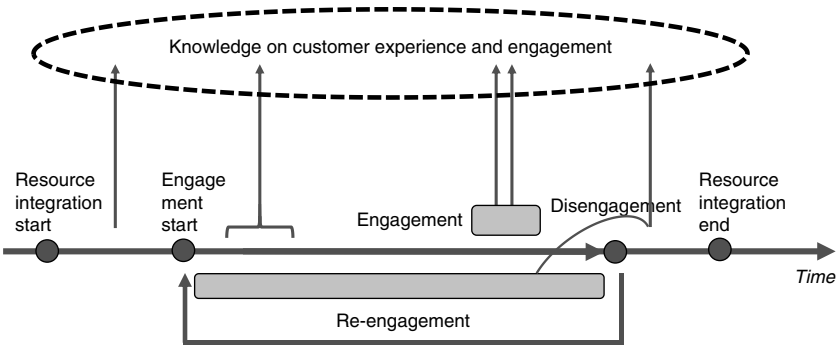


Figure 17.2 CE's temporal evolution throughout the CE lifecycle

mall, such as Alibaba Buy+ (Jean 2017). A selection of segments from the participant trajectory – that is, his historic trajectory – can be presented to the customer while he is shopping online. This could be a selection of recent purchases or products he was browsing in the department he is visiting. The historic and ongoing participant trajectory would be interwoven, engaging the customer in a new way.

In line with Hollebeek, Srivastava, and Chen (2019), Figure 17.2 commences with the customer's integration of particular resources. Subsequently, CE starts as the customer begins to invest their selected resources into particular brand interactions on a focal service (or engagement) platform (Breidbach, Brodie, and Hollebeek 2014). Following the onset of CE, the concept will be observed during a particular period at a specific level, which may also fluctuate (e.g. as customer resources drain, including mental resources [e.g. fatigue] or monetary resources, etc.). As the customer's situation (e.g. needs) changes or resource scarcity sets in, a phase of disengagement may ensue (O'Brien and Toms 2008), which can be either temporary or permanent in nature (Brodie et al. 2013). For example, while the customer no longer needing the product may be cause for CE's permanent cessation, variety-seeking may see them returning to the brand in the (near) future. As also shown in Figure 17.2, resource integration continues to co-exist with CE throughout the CE lifecycle (Hollebeek 2013).

CE episodes can have different temporal *durations*. Consequently, CE can refer to a single experiential episode, thus taking a micro-temporal perspective (Karapanos, Martens, and Hassenzahl (2009), or it can cover longer periods. It can also refer to differing *trajectory types*. For example, one could ask former customers about their previous engagement with a service (i.e. historic trajectory) or their ongoing experience (i.e. participant trajectory). When integrating resources, differing resource-integrating

frequencies and triggers (e.g. daily versus when a problem appears) can be observed, thereby reflecting non-engagement or disengagement at the intervening times.

In some cases, however, customers will decide to re-engage with the offering, as also shown in Figure 17.2. CE episodes can appear at any stage of the SI process. For example, customers may be involved in new concept creation and testing during the design stage, provide insight into market performance-related potential during the analysis stage, provide service-related feedback and provide their usage-related data in the launch and post-launch stages. Overall, a customer's engagement episode can start and terminate at any stage of the innovation process. A service provider may invite a select group of customers (e.g. lead users) to participate in concept creation, some of whom might extend their involvement to SI's subsequent stages. For example, while these customers may use a new service and provide feedback during the post-launch stage, others may cease their engagement after concept creation (i.e. the design stage). Therefore, understanding customers' intrinsic and extrinsic motivations to participate in the innovation process is important (Chasanidou and Karahasanovic (2017).

CONCLUSION

Given the shifting perspective from firm-controlled to more open innovation forms (e.g. co-innovation), there is a growing need to understand the dynamics characterizing CE in the SI process, as explored in this chapter. Specifically, while the importance of examining this theoretical interface has been highlighted, its implementation and characteristics remain nebulous to date (Hollebeek et al. 2018). In response to this gap, we developed an integrative model of CE and SI that focuses on CE-based temporality, or its unfolding throughout the SI process over time. The characteristics and nature of CE and its episodes will be different at different SI stages.

During the design stage and the analysis stage, CE episodes will be typically shorter, such as focus group workshops or crowd voting campaigns, and focus on canonical trajectories, representing temporal mapping envisaged by actors, including customers or designers. Actors' resource integration frequency will vary. For example, an actor may attend a workshop or submit a brand-related idea to the service provider's crowdsourcing platform (i.e. lower frequency), or participate in intensive proposed SI discussions (i.e. higher frequency).

Resource integration triggers during these phases include direct service provider invitations to participate (e.g. in the service ideation process) or the customer's own desire for new or improved service. The use of log files

that gauge user behavior and feedback are recommended, thereby capturing participant or historical trajectories. Triggers can be initiated by any SI actor. For example, a service beneficiary (customer) can report a service-related problem, service providers can request customers to log their usage data to improve the customer experience, or a knowledge beneficiary can invite customers to report their service experience.

Our work builds on the theoretical foundations proposed by Benford et al.'s (2009) temporal trajectory framework, Lusch and Nambisan's (2015) S-D logic-informed SI (Ordanini and Parasuraman 2011), and Hollebeek, Srivastava, and Chen's (2019) S-D logic-informed CE. We observe that CE's temporal evolution is characterized by a differential use of operant and operand resources throughout the identified SI stages. For example, to ideate new service ideas, actors' (e.g. firms', customers') *operant* resources (i.e. knowledge, skills) are key. Digital innovation tools may actively search to engage other actors in value cocreation (Lusch and Nambisan 2015). For example, an open innovation platform would support and moderate an online forum for discussing concepts and ideas during the design stage or initiate crowdsourcing voting during the analysis stage, acting thus as an operand. During the development and launch stages, these can, for example, collect data on customers' behaviour, being an operant, or actively ask for feedback from customers exhibiting a particular type of behaviour, being thus an operand.

By linking these theoretical perspectives, we also identify several important areas that merit further investigation. Future research implications include first the need to investigate how SI can be optimized with respect to CE's temporal dimensions. Particularly, one should consider the role of emerging technologies, such as artificial intelligence and virtual/augmented reality, in the CE and SI. For example, if and how can the use of chatbots as moderators during concept creation affect the frequency and duration of CE episodes? Would it lead to more effective processes? Or, if and how the prototyping of new services in VR can shorten CE episodes and/or make participation in innovation activities more attractive to customers? Answering such questions would require input from multiple disciplines and overcoming traditional disciplinary silos (Ostrom et al. 2015).

Second, drawing on our integrative model, we suggest investigations into ways in which protocol transparency and visibility can be improved. Comparing customers' canonical and participant trajectories might reveal parts of the process where customers experience a lack of protocol transparency and visibility. Building further on suggestions for designers of open innovation (Chasanidou and Karahasanovic 2016), a comprehensive set of design guidelines for protocol transparency and visibility should be developed and evaluated.

Third, we need a better understanding of the orchestration of temporal trajectories and the continuity of the time in CE and SI. As pointed out by Huang and Stoltermen (2011), use experience is fragmented, and there is no simple trajectory that can be easily determined. New tools which are more appropriate to represent complex temporal information within CE and SI are needed. They should, for example, support grouping customers according to their pace of interaction (Huang and Stolterman 2011), thus allowing a better understanding of customers' behaviour or a better synchronization of the feedback provided to the customers involved in concept design.

This chapter also reveals several managerial implications. First, considering CE's temporal evolution and its characteristics at different stages of the innovation process allows managers to plan for CE in innovation in a systematic way. Considering the frequency, duration and triggers of CE episodes and the different roles that actors may take in CE process might help managers to optimize usefulness and experience for all actors. Considering and clearly communicating to the customers the value of the generated knowledge, together with costs and benefits related to its integration, might help in increasing the duration and frequency of CE and improve the innovation process. Second, considering the three trajectory types and the different ways they might be combined is becoming increasingly relevant as services are adopting virtual and augmented reality. This can help in identifying new ways of engaging customers and new ways of using knowledge on CE. Naturally, it remains to be investigated how this impacts customers' perception of a service provider's innovativeness and its revenues.

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