

CUSTOMER INVOLVEMENT – A SYSTEMATIC LITERATURE REVIEW OF THE DEFINITION, MEASUREMENT, AND INNOVATION OUTCOMES

VEVŐI BEVONÁS – DEFINÍCIÓK, MÉRÉSI MÓDSZEREK ÉS INNOVÁCIÓS EREDMÉNYEK SZISZTEMATIKUS SZAKIRODALMI ÁTTEKINTÉSE

This study provides a systematic literature review of empirical, survey types of studies published in top-tier English academic journals about the impact of customer involvement on innovation outcomes. The results distinguish customer involvement from related concepts, outline the extant definitional ambiguities of customer involvement, and—based on the analyses of prior definitions and measurement items—suggest an updated, new definition of the concept. The study provides an overview and typology of innovation outcomes of customer involvement by showing that customer involvement may culminate in innovation process improvement, enhanced financial outcomes and superior innovation perception. The findings of this study might be especially insightful for firms that seek to involve customers, as it gives guidance for evaluating both the process and the outcomes of involvement. This emphasizes further gaps in the literature and suggests important avenues for further research.

Keywords: innovation, customer involvement, new product development, systematic literature review

A tanulmány szisztematikus szakirodalmi áttekintést nyújt a legmagasabb színvonalú angol nyelvű tudományos folyóiratokban megjelent empirikus, kérdőívalapú tanulmányokról, amelyek a vevők bevonásának innovációs eredményekre gyakorolt hatásáról szólnak. Az eredmények megkülönböztetik a vevői bevonást a kapcsolódó fogalmaktól, felvázolják definíciós kétértelműségeit, illetve – a korábbi definíciók és mérések elemzése alapján – a fogalom aktualizált, új definícióját javasolják. A cikk áttekintést és tipológiát ad a vevői bevonás innovációs eredményeiről, bemutatva, hogy szerepe az innovációs folyamatok javításában, a jobb pénzügyi eredményekben és a magasabb szintű innovációs felfogásban csúcsonosodhat ki. A tanulmány eredményei különösen hasznosak lehetnek a vevők bevonására törekvő cégek számára, mivel útmutatást ad a folyamat és az eredmények értékeléséhez. A tanulmány a szakirodalom hiányosságaira is kitér és fontos utakat javasol a további kutatásokhoz.

Kulcsszavak: innováció, vevői bevonás, új termékfejlesztés, szisztematikus szakirodalom-áttekintés

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Author/Szerző:

Ádám Katona¹ (adam.katona@uni-corvinus.hu) PhD candidate

¹Corvinus University of Budapest (Budapesti Corvinus Egyetem) Hungary (Magyarország)

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The role of customers has dramatically changed in recent years. As part of this paradigm shift, firms tend to see customers less as a mere source of information but increasingly as partners and co-creators, especially in innovation (Pralhalad & Ramaswamy, 2004). As a recent Deloitte (2021) report summarizes, firms can stay ahead of

the competition if they engage customers through customer involvement at its deepest levels. Given the recognized relevance of customer involvement, this study systematically reviews the literature to enrich the domain of customer involvement and innovation. Specifically, the study investigates the following research questions:

- How is customer involvement defined and measured?
- How is customer involvement differentiated from related concepts?
- What is the effect of customer involvement on innovation?

The findings from this review offer three key contributions to the extant literature. First, the extant research organized around various fields – such as knowledge management, marketing, innovation, entrepreneurship, and information systems – considers several aspects of customer involvement but lacks a clear and inclusive typology that delineates customer involvement’s domain, scope, or boundaries. A multitude of conceptualizations of customer involvement co-exists, which limits the effective accumulation of domain knowledge. For example, some customer involvement research refers to the concept as the ability of the firm to create the environment for the customer to have direct interaction (Anning-Dorson, 2018), while other studies refer to customer involvement as activities where customers participate in firm-initiated practices (Menguc, Auh, & Yannopoulos, 2014). Moreover, customer involvement is often discussed with other concepts such as value co-creation, customer co-creation, customer integration, open innovation, etc. and even as a synonym to these terms. This conceptual confusion and overlap may be the source of inconsistent results. To fill this void, this study offers an integrated definition for customer involvement, resolves definitional ambiguities and outlines the scope of the topic.

Second, there is a lack of understanding of the innovation-related outcomes of customer involvement. For example, some studies suggest that customer involvement has a positive effect on the financial performance of innovation (Kang, Lee, Hwang, Wei, & Huo, 2020), while other studies do not confirm a direct link or measure a negative effect (Stendahl, 2009). This study offers valuable resources for managers who seek to keep track of their customer involvement outcomes in terms of innovation outcomes.

Finally, although this study mainly focuses on the review of papers published in top-tier English language academic journals, it provides a brief overview of the research published in leading Hungarian academic sources.

The paper is organized as follows. In the next section, I give a detailed overview of how I collected potentially relevant papers, how I identified and coded the relevant ones, and how I analysed them. In the next sections, I present my results. Specifically, I show how prior papers defined and measured customer involvement, distinguish customer involvement from related concepts and present a typology and measurement of customer involvement’s innovation outcomes. This is followed by a discussion of the theoretical and managerial contributions of the paper. The paper concludes by presenting avenues for future research.

Methods

For the systematic literature reviews, I followed the guidelines of Tranfield, Denyer, and Smart (2003). The aim

of the method is to review survey types of papers that examine the effect of customer involvement on innovation outcomes. My methodological procedure has the following three stages: (1) the identification of potentially relevant papers, (2) relevancy identification and detailed coding, and (3) an analysis of the relevant papers. As a first step of the systematic literature review, I identified potentially relevant papers. I searched using the strings “customer co-creation” OR “customer involvement” AND “innovation” OR “NPD” OR “new product development” OR “new service development” AND “questionnaire” OR “survey”. I used two databases, specifically, Scopus and Web of Science.

Table 1

Analytical procedure

(1) Overview and comparison of prior definitions and measurement of customer involvement
Aim of analysis: Provide an updated, more accurate, and comprehensive definition for customer involvement and give guidance to managers on how to evaluate and measure customer involvement
<i>Analytical sub-procedure for an overview of definitions</i> Data source: Manuscript, definitions as (if) presented Unit of analysis: Elements of definitions Analytical method: Iterative grouping
<i>Analytical sub-procedure for an overview of prior measurements</i> Data source: Manuscript, scale items Unit of analysis: Items in the measurement scale used for capturing customer involvement Analytical method: Iterative grouping
<i>Analytical sub-procedure for comparison</i> Unit of analysis: Categories of definitional elements and measurement items Analytical method: Contrasting the categories of prior definitions and measurement items
(2) Overview of measurement of innovation outcomes
Aim of analysis: Illustrate the aspects of customer involvement’s innovation outcomes that were previously considered and guide managers on how to evaluate the outcomes of customer involvement’s connection to innovation
<i>Analytical sub-procedure for an overview of definitions</i> Data source: Manuscript, scale items Unit of analysis: Items in the measurement scale used for capturing innovation outcomes Analytical method: Iterative grouping

Source: own compilation

Considering the lack of a uniform conceptualization of co-creation in the literature, I needed to give special attention to identifying relevant papers. I included duplicate, mishit (e.g., book chapters and conference proceedings) and considered manuscripts from highly ranked academic journals (i.e., Q1, <https://scimagojr.com>). I excluded studies that did not investigate the link between customer involvement and innovation, studies on the technical aspects of coco-creation (the platforms used for involving customers, the role of online reviews in co-creation, the

characteristics of customer co-creation compared to market research, etc.), and studies on the process innovation outcomes of co-creation (the role of co-creation in supply chain innovations, manufacturing system innovations, etc.). Finally, only the papers that report the scale items used for measuring customer involvement were included.

This research results in (1) an overview and comparison of prior definitions and measurements of customer involvement and (2) an overview of the measurement of innovation outcomes. Table 1 summarizes the contributions that I expect from the respective analyses, the data sources, and the analytical procedures.

As Table 1. shows, the aim of reviewing the definitions and the measurement items used to capture customer involvement is to provide an updated, more accurate, and comprehensive definition of customer involvement and give guidance to managers on how to evaluate and measure customer involvement. To achieve this goal, I used the manuscripts as data sources, and I used the iterative grouping of definitions and measurement items. The aim of the overview of the innovation outcomes of customer involvement is to illustrate the variety of customer involvement innovation outcomes that were previously considered and to guide managers on how to evaluate the outcomes of customer involvement in innovation. When creating the typology for the innovation outcomes, I also worked with the measurement items and allocated them to the categories that emerged as a result of the analysis.

Definition, measurement and conceptual distinction of customer involvement

What is customer involvement?

Table 2

Exemplary definitions of customer involvement and an integrated new definition

Definition of customer involvement
<i>Integrated new definition</i>
Customer involvement is the firm's (1) intensive, frequent and bidirectional collaboration (2) with customers, as initiated and encouraged by the firm, (3) to cultivate valuable customer knowledge and (4) to improve outcomes at various stages of the innovation.
<i>Exemplary prior definitions</i>
<ul style="list-style-type: none"> • Customers' active contribution to the development of new products, for instance, by suggesting innovative ideas for new products or testing developed prototypes (Keszey & Biemans, 2016) • Both the breadth and depth of the customer participation in the firm's new product development (NPD) (Anning-Dorson, 2018) • The extent to which service producers interact with current (or potential) representatives of one or more customers at various stages of the new service development process (Carbonell, Rodríguez-Escudero, & Pujari, 2009)

Source: own compilation

As a result of my systematic literature search, I created an updated new customer involvement definition, which was needed because previous definitions did not cover the full spectrum of the phenomenon. According to the new definition, customer involvement is a firm's (1) intensive, frequent, and bidirectional collaboration (2) with customers, as initiated and encouraged by the firm, (3) to cultivate valuable customer knowledge and (4) to improve outcomes at various stages of the innovation. Table 2 not only contains the new definition but also provides some example definitions from prior studies. The rest of the chapter explains how I created the new definition. Prior definitions have partially addressed these aspects, but as the exemplary definitions illustrate, in many cases, essential definitional elements are ignored, such as the notion that customer involvement is initiated by the firm at various stages of the innovation process.

The following parts of this section show the items used to measure customer involvement and quotes from prior definitions. The definitional elements and measurement items are organized around the four definitional elements and provide credit for the necessity of adding each element to the definition.

As Table 3 shows, for example, in the relational aspects (1) of intensive, frequent and bidirectional collaboration, it can be seen that many researchers emphasise the active involvement of customers in the measurements, such as "our customers were *actively* involved in a variety of product designs and development activities" (Cui & Wu, 2017) or "customers were *actively* engaged with this project" (Storey & Larbig, 2018). In a similar vein, frequency also appears recursively in definitions, such as "the transfer of information about customers' needs and preferences took place *frequently*" (Cui & Wu, 2016) or the "the *frequency* of the meetings with customers was high (Carbonell et al., 2009)".

Table 3

Measurement of the nature of collaboration with customers in the scales used for capturing customer involvement

Customer involvement definitions and items used to capture the nature of collaboration with customers
<i>Prior definitions</i>
<ul style="list-style-type: none"> • <i>Frequent, bidirectional, and face-to-face</i> customer communication process (Gustafsson, Kristensson, & Witell, 2012) • <i>Dialogue, mutual influence, and understanding</i> of customers rather than one-way listening (Hsieh & Hsieh, 2015) • Brings <i>different parties</i> together (i.e., a group of customers) (Tseng & Chiang, 2016) • Direct <i>interaction and engagement</i> of the customer (Anning-Dorson, 2018) • Customers <i>actively</i> contribute to the development of new products (Keszey & Biemans, 2016)

Table 4

Definition and measurement of the knowledge aspect in the scales used to capture customer involvement

<i>Measurement items</i>
<p>Intensity</p> <ul style="list-style-type: none"> • Our customers were <i>actively</i> involved in a variety of product designs and development activities (Anna Shaojie Cui & Wu, 2017) • <i>Active</i> customer involvement (Gustafsson et al., 2012) • Customers were <i>actively</i> engaged with this project (Storey & Larbig, 2018) • There were <i>extensive</i> consultations with customers (Carbonell et al., 2009) <p>Frequency</p> <ul style="list-style-type: none"> • The transfer of information about customers' needs and preferences took place <i>frequently</i> (Cui & Wu, 2016) • Our customers <i>frequently</i> interacted with the new product team during the development process (Cui & Wu, 2016) • Our customers provided <i>frequent feedback</i> and input on product designs (Cui & Wu, 2016) • The <i>frequency</i> of the meetings with customers was high (Carbonell et al., 2009) • Our key customers are involved in <i>periodically</i> reviewing operations with us (Lin, Chen, & Chiu, 2010) <p>Bidirectionality</p> <ul style="list-style-type: none"> • The major customer was an <i>integral part</i> of the design effort for the new product development (Feng & Wang, 2013; Kang et al., 2020; Li, Li, Feng, & Xu, 2019) • We <i>partnered</i> with major customers for developing a new product (Feng & Wang, 2013; Li et al., 2019) • To reduce lead time, I have focused on <i>collaboration</i> (Gustafsson et al., 2012) • This product was developed in close <i>co-operation</i> with a potential or current main customer (Stendahl, 2009) • Specific customers were <i>invited</i> to join the project as team members (Carbonell et al., 2009) • A high degree of <i>face-to-face</i> communication (Gustafsson et al., 2012) <p>Initiated and encouraged by the firm (aspect neglected in the definitions)</p> <ul style="list-style-type: none"> • My company <i>encourages</i> customers to express their opinions on my services on social media (e.g., Facebook, Twitter, LinkedIn) (Mitrega, Spacil, & Pfajfar, 2020) • We always <i>encourage</i> my customers to help us in the production of quality service (Anning-Dorson, 2018) • Our employees are <i>encouraged</i> to monitor the internet to search for customer opinions on my company (Mitrega et al., 2020)

Source: own compilation

Table 4 presents the definitional elements and the measurement items of the knowledge aspect. As seen from the definitional elements, in the case of customer involvement, the exchange value is knowledge itself. However, the measurement items also draw attention to two important aspects, which have been neglected in the definitions. On the one hand, knowledge sharing is not one-way. This notion is reflected by (Hsieh & Hsieh, 2015) who suggests using the item “we explain the ideas in a meaningful way to customers” or by (Tseng & Chiang, 2016) who measure customer involvement by asking respondents to evaluate the extent to which firms “Provide customers with professional knowledge in fields with which they are not already familiar”.

Customer involvement definitions and the items used to capture the knowledge aspect of collaboration with customers
<p>Knowledge aspects in prior definitions</p> <ul style="list-style-type: none"> • Customers providing <i>feedback, information, and knowledge</i> to firms (Menguc et al., 2014) • Suggesting <i>innovative ideas</i> for new products or testing developed prototypes (Keszei & Biemans, 2016) • Creative <i>problem solving</i> (Gustafsson et al., 2012) <p>Knowledge aspects in measurement items</p> <p>Knowledge sharing of the firm with customers (aspect neglected in the definitions)</p> <ul style="list-style-type: none"> • We explain the ideas in a meaningful way to customers (Hsieh & Hsieh, 2015) • Provide customers with professional knowledge in fields with which they are not already familiar (Tseng & Chiang, 2016) • We actively provide information to reply to customers' suggestions (Hsieh & Hsieh, 2015) <p>Knowledge gained by firms from customers</p> <ul style="list-style-type: none"> • We always gather market insights from customers through face-to-face customer meetings, visits, workshops, or customer suggestions (Anning-Dorson, 2018) <p>Cultivate customers as valuable sources of external knowledge (aspect neglected in the definitions)</p> <ul style="list-style-type: none"> • Our customers' involvement as codevelopers of the product was <i>significant</i> (Cui & Wu, 2016) • Customers give <i>lots of feedback</i> for the new ideas (Hsieh & Hsieh, 2015) • NPd is governed to a <i>large extent</i> by customer feedback (Keszei & Biemans, 2016) • We used customers as a <i>key information</i> source (Cui & Wu, 2017) • Our key customers have a <i>major influence</i> on the design of new products (Feng, Sun, Zhu, & Sohal, 2012) • Customers were my <i>main</i> data providers (Haisu Zhang & Xiao, 2020) • Communication and interaction leading to <i>novel</i> ideas (Gustafsson et al., 2012)

Source: own compilation

Table 5 depicts the definitional elements and the measurement items of the innovation outcome aspect. As the definitions show, the core aim of customer involvement is to reach enhancements of innovation outcomes. This notion is further illustrated in the items used for measurement. Specifically, a number of studies emphasise the stage of customer involvement. For example, when measuring customer involvement, (Melton & Hartline, 2015) ask whether customers were involved in the design stage, while, for example, (Storey & Larbig, 2018) focus on whether customers were involved at every stage of the innovation project. These measurement items show that customer involvement might play a role at various stages, and this could also be reflected in the new definition.

Table 5

Definition and measurement of the innovation outcome aspect in the scales used to capture customer involvement

Outcome aspect of customer involvement (for improved outcomes at various stages of the innovation)
Outcome aspect in prior definitions
<ul style="list-style-type: none"> The extent to which service producers interact with customers at various stages of the innovation process (Carbonell et al., 2009) Leverage customer communication and enable this communication to be transformed into input into [service] innovations (Mitrega et al., 2020) Manufacturers incorporate their customers into their product development and continuous improvement programs (Feng et al., 2014) (Yang & Zhang, 2018) Breadth and depth of the customer participation in the firm's innovation (Carbonell, Rodriguez-Escudero, & Pujari, 2012)
Outcome aspect in the measurement items
Stages
<ul style="list-style-type: none"> We consulted major customers early in the design efforts for the new product (Feng & Wang, 2013) Customers were involved early in the development process (Gustafsson et al., 2012) To what extent were customers involved in the design stage? (Melton & Hartline, 2015) Customers were involved at every stage of the project (Storey & Larbig, 2018)
New product development
<ul style="list-style-type: none"> There is a strong consensus in my firm that customer involvement is needed in product design/development (Feng et al., 2012; Yang & Zhang, 2018; Huiying Zhang & Yang, 2016; Zhao, Feng, & Shi, 2018) We used information about my customers' needs in the development of the new product (Cui & Wu, 2016) We utilized product designs that were created by my customers (Cui & Wu, 2016) Our customers' involvement constituted a significant portion of the overall product development effort (Cui & Wu, 2017) Our project team acted on data from customers (Haisu Zhang & Xiao, 2020)

Source: own compilation

What customer involvement is not?

After having discussed the definition of customer involvement, I want to distinguish customer involvement from related but different concepts and then include customer co-creation, customer integration, crowdsourcing, value co-creation, open innovation and customer participation.

As Table 6 posits, customer involvement can be differentiated from these concepts along with the four definitional elements that I identified by investigating prior studies (see the previous section). These elements refer to (1) intensive collaboration (2) with customers that (3) brings in customer knowledge (4) with the aim of new product development. I start with customer co-creation, which is a subset of customer involvement. Customer involvement typically takes the form of a bidirectional, collaborative mode (e.g., Anning-Dorson, 2018). Some scholars, howev-

Table 6

Conceptual distinction of customer involvement

Concepts	Definitional elements			
	1 ^a	2 ^b	3 ^c	4 ^d
What is customer involvement?				
Customer involvement: the firm's (1) intensive, frequent and bidirectional collaboration (2) with customers, as initiated and encouraged by the firm, (3) to cultivate valuable customer knowledge and (4) to improve outcomes at various stages of the innovation.	yes	yes	yes	yes
What customer involvement is not?				
Narrower concept than customer involvement				
Customer co-creation: an active, creative, and social collaboration process between the firm and customers during the innovation, as facilitated by the company (Piller & Walcher, 2006)	yes	yes	yes	yes
Broader concepts than customer involvement^e				
Customer integration: the combining of customer resources (persons, possessions, nominal goods, or personal data) with the company resources to transform customer resources (Moeller, 2008)	yes	yes	nlt ^f	nlt
Crowdsourcing: a type of participative online activity in which an individual, an institution, a non-profit organization, or company proposes to a group of individuals of varying knowledge, heterogeneity, and number, via a flexible open call, the voluntary undertaking of a variety of tasks (Estellés-Arolas & González-Ladrón-de-Guevara, 2012)	yes	nlt	yes	nlt
Value co-creation: a joint, collaborative, concurrent, peer-like process of co-creating new value through customer experience and competence. Value creation is an all-encompassing process that includes provider and customer activities (design, delivery, manufacturing, delivery, and usage) (Grönroos, 2011)	yes	yes	nlt	nlt
Open innovation: a distributed innovation process based on purposively managed knowledge flows with a variety of actors across organizational boundaries that uses pecuniary and nonpecuniary mechanisms in line with the organization's business model (Chesbrough, Vanhaverbeke, & West, 2014)	yes	nlt	yes	yes
Different from customer involvement but related concepts				
Customer participation: the degree to which the customer is involved in producing and delivering the service (Dong, Evans, & Zou, 2008)	nlt	yes	nlt	no
Value in use: a joint, collaborative, concurrent, peer-like process of co-creating new value through customer experience and competence. Value in use co-creation is limited to creating value during the customers' usage of the product (Grönroos, 2011)	yes	yes	nlt	no
Value co-destruction: an interactional process between service systems that results in a decline in at least one of the systems' well-being (Plé & Chumpitaz, 2009)	yes	yes	nlt	no

^a Intensive, frequent collaboration; ^b With customers; ^c Customer knowledge; ^d New product development, innovation; ^e Concepts are identified as broader if at least one of the definitional elements may contain but typically focuses on a broader scope; ^f Not limited to/not focal

Source: own compilation

er, also mention forms of customer involvement in which customers are only regarded as sources of information in contrast to more collaborative forms of involvement (e.g., Cui & Wu, 2017). Customer co-creation is, by definition, an active, creative, and social collaborative process between the firm and customers, as facilitated by the company (Piller & Walcher, 2006). Therefore, it is not easy to draw a sharp boundary line between the two concepts. The term co-creation may refer to a more active contribution than customer involvement, which may also take a more passive form. Based on these arguments, I conceptualize co-creation as a subset of customer involvement.

I consider customer integration, crowdsourcing, value co-creation, open innovation and customer participation as broader concepts than customer involvement. For example, as the crowdsourcing definition suggests, it is a type of *participative online* activity in which an individual, an institution, a non-profit organization, or company proposes to a *group of individuals* of varying *knowledge*, heterogeneity, and number, via a flexible open call, the voluntary undertaking of a variety of tasks (Estellés-Arolas & González-Ladrón-de-Guevara, 2012). Therefore, crowdsourcing differs from customer involvement in the sense that crowdsourcing is not limited to the exchange of value with customers; moreover, crowdsourcing may also involve “crowds” who are not the customers of the firm and may include other stakeholders, such as individuals, institutions, non-profit organizations. In a similar vein, value co-creation is also conceptually different from customer involvement, as it is defined as a joint, *collaborative*, concurrent, peer-like process of co-creating new *value* through *customer experience* and competence. Value creation is an *all-encompassing* process that includes provider and customer activities (design, delivery, manufacturing, delivery, and usage) (Grönroos, 2011). Accordingly, value co-creation aims to exchange a variety of resources beyond customer knowledge as customer involvement suggests, with the aim of creating new value, which may not necessarily be limited to innovation.

Table 6. presents customer participation as an example of a concept different from customer involvement. Specifically, customer participation is defined as the degree to which the *customer* is *involved* in *producing* and *delivering* the service (Dong et al., 2008); thus, customer participation focuses on the production and delivery process, not the innovation process. Similarly, value in use differs from customer involvement in the sense that it is limited to creating value during the customers’ *usage* of the product (Grönroos, 2011), not during the process of innovation, as customer involvement suggests.

Measuring the innovation outcomes of customer involvement

This section presents the innovation outcomes of customer involvement and shows how these outcomes can be captured and measured. In prior research, the innovation outcomes of customer involvement were organized around the three core metrics of (1) innovation process-related

metrics, (2) financial outcomes, and (3) customers’ innovation perception.

Table 7 illustrates the items used to capture the innovation process outcomes of customer involvement. For example, studies have measured the improvement of the innovation speed (Morgan, Anokhin, Song, & Chistyakova, 2019), process novelty (Carbonell et al., 2012) and economic improvements of innovation as an outcome of customer involvement (Zhao et al., 2018). The projection base refers to what these process improvements had to be compared. As Table 7. shows, some of the improvements were compared to firm-internal values, such as – as a result of customer involvement – „The speed of new product development of my firm is much faster than I expected” (Morgan et al., 2019). Another part of the research used competitors as a benchmark, such as (Carbonell et al., 2009) measuring the technical superiority compared to competitors as a customer involvement outcome: “Fewer technical problems than my nearest competitors”.

Table 7
Measurement of the innovation process outcomes of customer involvement

Innovation process
Projection base: Firm
<i>Innovation speed</i>
<ul style="list-style-type: none"> • The speed of new product development of my firm is far ahead of my project timeline (Morgan et al., 2019) • The speed of new product development of my firm is much faster than I expected (Morgan et al., 2019) • The speed of new product development of my firm is much faster than my typical product development time (Morgan et al., 2019)
<i>Innovation process novelty</i>
<ul style="list-style-type: none"> • The new service exploited a technology that was new to the firm (Carbonell et al., 2012)
<i>Green product innovation</i>
<ul style="list-style-type: none"> • Using environmentally friendly material (Zhao et al., 2018) • Improving and designing environmentally friendly packaging for existing products (Zhao et al., 2018)
Projection base: Competitors
<i>Technical superiority</i>
<ul style="list-style-type: none"> • Fewer technical problems than my nearest competitors (Carbonell et al., 2009)

Source: own compilation

As Table 8 shows, most of the studies scrutinized the financial results of innovation as an outcome of customer involvement. There are a variety of metrics in the questionnaires, such as return on investment (ROI), return on assets (ROA), income- and spending-related metrics (sales, commercial success, revenue goals, costs, and profitability), and market success (market share). Part of the research considers the firm, while for other studies, the competitors are benchmarks to evaluate these metrics. For example, some researchers measure return on investment (ROI) relative to its firm-internal stated objective (Cui & Wu, 2016; Tseng & Chiang, 2016; Yang & Zhang,

2018; Haisu Zhang & Xiao, 2020), while other scholars measure it relative to competitors (Menguc et al., 2014; Huiying Zhang & Yang, 2016). Similarly, the market share outcomes of the new product can be evaluated compared to firm-set goals (Carbonell et al., 2009; Cui & Wu, 2016; Melton & Hartline, 2015; Morgan et al., 2019; Storey & Larbig, 2018; Yang & Zhang, 2018; Haisu Zhang & Xiao, 2020) or compared to main competitors (Feng & Wang, 2013; Menguc et al., 2014; Huiying Zhang & Yang, 2016).

Table 8

Measurement of the innovation financial result outcomes of customer involvement

Financial results
Projection base: Firm
<ul style="list-style-type: none"> Return on investment relative to its stated objective (Cui & Wu, 2016; Tseng & Chiang, 2016; Yang & Zhang, 2018; Haisu Zhang & Xiao, 2020) Return on assets (Keszezy & Biemans, 2016) Sales, commercial success relative to its stated objective (Carbonell et al., 2009; Cui & Wu, 2016; Gustafsson et al., 2012; Keszezy & Biemans, 2016; Melton & Hartline, 2015; Morgan et al., 2019; Storey & Larbig, 2018; Tseng & Chiang, 2016; Haisu Zhang & Xiao, 2020) Market share relative to its stated objective (Carbonell et al., 2009; Cui & Wu, 2016; Melton & Hartline, 2015; Morgan et al., 2019; Storey & Larbig, 2018; Yang & Zhang, 2018; Haisu Zhang & Xiao, 2020) Overall profitability, profitability compared to the goal (Gustafsson et al., 2012; Keszezy & Biemans, 2016; Melton & Hartline, 2015; Morgan et al., 2019; Tseng & Chiang, 2016; Yang & Zhang, 2018; Haisu Zhang & Xiao, 2020) Costs (within planned budget) (Feng & Wang, 2013; Li et al., 2019) Revenue goals (Yang & Zhang, 2018) Number of sold products (Pee, 2016)
Projection base: Competitors
<ul style="list-style-type: none"> Return on investment relative to competitors (Menguc et al., 2014; Huiying Zhang & Yang, 2016) Sales, sales growth relative to competitors (Feng & Wang, 2013; Menguc et al., 2014) Market share, market share growth relative to (main) competitors (Feng & Wang, 2013; Menguc et al., 2014; Huiying Zhang & Yang, 2016) The profitability, profit growth of the new product is high relative to main competitors (Feng & Wang, 2013; Huiying Zhang & Yang, 2016) Overall commercial success compared to competitors (Huiying Zhang & Yang, 2016) NP performance relative to main competitors (Hsieh & Hsieh, 2015; Menguc et al., 2014)

Source: own compilation

A third subset of the metrics used to measure customer involvement outcomes were related to innovation perception (Table 9). Researchers have asked about the perceived customer satisfaction of the innovation, for example, the degree to which the new product meets or exceeds customer expectations (Tseng & Chiang, 2016). Some of the research assessed the reception of innovations – as an out-

come of customer involvement – compared to competitors. For example, the “customer solution was superior to competitors” (Carbonell et al., 2009), and “our NPD projects were more novel and innovative compared with my competitors” (Keszezy & Biemans, 2016).

Table 9

Measurement of the innovation perception outcomes of customer involvement

Perception of innovation
Projection base: Customers
<ul style="list-style-type: none"> Number of similar products identified by customers (reverse coded) (Pee, 2016) The new product meets or exceeds customer expectations (Tseng & Chiang, 2016) The new product meets or exceeds customers’ expectations of satisfaction (Tseng & Chiang, 2016) The new product meets or exceeds the customers’ expected value (Tseng & Chiang, 2016) The new service provides substantially higher customer benefits relative to the previous services in the category (Melton & Hartline, 2015)
Projection base: Competitors
<ul style="list-style-type: none"> The percentage of service innovation that met customer needs relative to competitors (Hsieh & Hsieh, 2015) The market response to my NPD projects was more positive than my competitors’ (Keszezy & Biemans, 2016) Our NPD projects were more successful than my competitors’ (Keszezy & Biemans, 2016) Our NPD projects were more novel and innovative compared with my competitors (Keszezy & Biemans, 2016) Service experience was superior to competitors (Carbonell et al., 2009) Customer solution was superior to competitors (Carbonell et al., 2009) The new service is a highly innovative service, which replaces a vastly inferior alternative (Melton & Hartline, 2015)

Source: own compilation

Brief overview of Hungarian research

As an extension to the overview of the literature published in top-tier international journals, I also reviewed studies from this domain. During my work, I found that most Hungarian research in this field focuses mainly on innovation, knowledge management and product development. The involvement of customers in innovation and product development processes has not been thoroughly researched in Hungary. My analysis is different from the Hungarian research conducted thus far and strives to provide insight into the examined problems by connecting the academic literature on innovation, product development and knowledge management. Strictly speaking, I have not found relevant research on the topic of the connection between customer involvement and innovation outcomes. Below, I provide a short overview of the relevant Hungarian academic literature and slightly expand the perspective to research that does not have a direct connection to the theme of my research.

When analysing the Hungarian literature, I classified the writings on this topic into three groups. In the first group, the works address the nature and concept of innovation in general and its organizational and managerial aspects. The second focuses on knowledge management and the effective use of knowledge for innovation. The third group explores the nature and relationship between product development and innovation using different approaches. These domestic publications help to understand the basic concepts that frame the topic and emphasise the present situation regarding the research on the subject in Hungary.

Understanding the concept of innovation and related areas

The term innovation covers a wide range of concepts, from the skin-friendly angle of a razor blade to the discovery of the internet or the mapping of the human genome. There is therefore a myriad of approaches to defining innovation in the business and academic literature (Fejes, 2015).

For companies, having a competitive advantage is essential for market performance. Creating and realizing competitive advantages in innovation is the basis for achieving and maintaining a successful market position. In this respect, innovation is not an ad hoc, one-time extra for businesses but a complex, ongoing, and integrative task to always ensure competitiveness (Piskóti, 2016). The relationship between innovation and corporate performance can be attributed to several factors. On the one hand, the number of innovations observed is related to corporate capabilities, and financial performance based on corporate capabilities can provide a good forecast for service companies (Berezvai, Agárdi, & Szabolcsné Orosz, 2019). In addition, several tools are available to quantify innovation performance, such as market-based (market share and customer satisfaction), financial success (profit and profit rate) and technical performance indicators (technical specifications and competitive advantage rate) metrics (Keszey, 2018).

Defining the role of marketing in innovation is one of the pillars of my research. Currently, more than ever, marketing can fulfil its fundamental task of supporting the business success of enterprises and the achievement of their goals only if it also focuses on innovation activity and if it acts as “innovation marketing”, i.e., it helps to develop the competitive advantages of the enterprise in terms of innovation and to implement them on the market. The task of marketing is to ensure the competitiveness and market success of enterprises, which are increasingly based on innovation. The current 3rd generation theoretical approach, which represents an integral link between innovation and marketing, and the practice aimed at ensuring the competitiveness and market success of innovation performance can be considered an era of marketing-driven innovation, where marketing itself becomes innovative and innovation-driven (Piskóti, 2016). Marketing innovation capabilities can also increase the general competitiveness of companies (Berezvai et al., 2019).

Knowledge management and the efficient use of knowledge for innovation

Knowledge is often seen as a strategic factor by organizations and their managers (Keszey & Katona, 2015). The driving force behind the successful market performance of companies is their ability to innovate; knowledge management has a significant impact on this innovation capability, with knowledge sharing playing a key catalytic role (Keszey, 2018). Global competition has put the innovative capacity of companies at the centre of attention of both managers and academics. Companies that work in the knowledge-based economy need to place a particular emphasis on developing their ability to renew and adapt (Baksa & Báder, 2020).

Currently, the conditions for innovation have also changed significantly: new intellectual content is created through the joint thinking and cooperation between people with different knowledge (Baksa & Báder, 2020). Knowledge sharing is at the heart of knowledge management processes, as it links the acquisition of knowledge with its exploitation at the organizational level. It also plays a particularly important role in making tacit knowledge actionable. Tacit knowledge can be made available to the organization primarily through personal interactions and knowledge sharing (Baksa & Báder, 2020). Market knowledge at the company level thus facilitates the success of innovation, as the knowledge of customers' preferences enables businesses to better understand their customers' needs and offer them novel and innovative products, and innovations are more likely to meet customers' expectations (Keszey, 2018).

Exploring the link between product development and innovation

Product is a broad concept in the management literature and encompasses not only physical and tangible products but also services (Keszey, 2018). In addition, there is a rich literature on innovation, including the process of developing a new product from a procurement perspective (Gelei & Jámor, 2018). Surveys were launched in the 1960s to determine what makes an innovation successful and what are the characteristics of firms that are at the forefront of innovation. Initially, product-level and later firm-level studies dominated (Kiss, 2014). Innovation and, in particular, the development of new products, is a key driver for firms, as it can lead to increased performance and competitiveness in many ways and can be a key source of survival and renewal (Bokor, 2003).

Both development engineers and marketing specialists play, or at least may play, a key role in the development of new products (Pataki, 1996). The specific processes of product development can always be mapped as the result of different market imperatives and technological opportunities in the practical work of firms. The notion of novelty, according to the degree and source of novelty of the product/service, can also be approached by taking stock of the basic development orientation. Orientations can be derived from an assessment of two factors, namely, prod-

uct maturity, i.e., from new product to known product, and the alignment of the product and the customer, i.e., from the user's directly expressed needs to the transfer of new opportunities offered by the technology (Szakály, Berényi, & Harangozó, 2006). In so-called 'market-driven' companies, the main driver for the development of new products is the 'market push'. New product ideas and initiatives are mainly driven by marketers (Pataki, 1996).

Contributions

Theoretical contributions

This study set out to review the current state of the art in the literature that examines the impact of customer involvement on innovation. The study contributes to the extant literature by 1) defining and conceptually distinguishing customer involvement from other related concepts, 2) providing an overview of the measurement of innovation outcomes, and 3) offering a brief overview of the Hungarian research published in this domain.

To address the call for clarity and consistency in the usage, definition, and measurement of the concepts in the customer involvement literature, I resolve definitional ambiguities and suggest an improved definition to be utilized in further research. The updated definition has four main definitional elements: bidirectional collaboration with customers to cultivate customer knowledge for improved innovation outcomes. With the help of the four definitional elements, customer involvement can be well distinguished from the related concepts, such as value co-creation or crowdsourcing. As my review reveals, there is no uniform scale available to capture customer involvement. It is beyond the scope of my research to develop a unified measurement tool, but my study may serve as a basis for such developments. In my research, I also reviewed the measurement of innovation outcomes, and three innovation-related outcomes – specifically, the innovation process, financial results, and perception of innovation – are outlined, which are affected by customer involvement.

Managerial contributions

Contemporary managers have started to think differently about customers and see them not only as a source of revenue but also increasingly as collaborators. This research supports this new approach by providing a tool and approach for managers to evaluate customer involvement.

For example, as a measure of the customer involvement process, based on my findings, it is worth monitoring the following aspects.

- To what extent can collaboration with customers be described as frequent, intensive, and bidirectional during customer involvement?
- To what extent is the knowledge that the firm gains through collaboration valuable?
- Does the firm share its knowledge with customers during customer involvement (in addition to gaining customer knowledge)?
- At what stages are customers involved in innovation?

Moreover, my research provides valuable insights to firms that seek to evaluate the outcomes of customer involvement. My review suggests that firms should continue monitoring the innovation outcomes of customer involvement in terms of the following aspects.

- To what extent does customer involvement improve the innovation process in terms of the following aspects?
 - Innovation speed
 - Technical superiority and process novelty
 - Environmental aspects of innovations
- To what extent does customer involvement improve the financial outcomes of innovation in terms of the following aspects?
 - Return on investment
 - Return on assets
 - Sales and commercial success
 - Cost reduction
 - Market share
 - Profitability

Managers should keep in mind that these metrics should be evaluated not only compared to internal firm metrics but also competitor benchmark values.

Limitations and directions for future research

To better understand the relationship between customer involvement and its subsequent innovation outcomes, rigorous empirical research efforts are needed. Based on my literature review, I suggest an updated, amended definition for customer involvement. There is a large variance in the extent to which the items used in the articles cover these aspects, and I can conclude that there is no widely accepted scale to measure the phenomenon. This is surprising regarding the efforts made to standardize the measurement scales of customer involvement-related concepts and a limitation that should be addressed by future research to promote the comparability of empirical findings.

As a result of my systematic literature search, three distinct innovation outcomes (the NPD process, financial results, and NP perception) emerge. Nevertheless, numerous studies combine these outcomes; for example, the measurement for detecting innovation outcomes contains items that refer to financial performance and NP perception within the same scale. Future research should be more rigorous in this respect; otherwise, it reduces the accuracy and comparability of the measurements. Studies suggest that customer involvement affects various innovation outcomes differently (Keszey & Biemans, 2016) and impacts financial innovation performance through the innovation process and innovation perception (Feng & Wang, 2013; Huiying Zhang & Yang, 2016). If the measurement does not allow the separation of the distinct aspects of innovation outcomes, then it is difficult to pinpoint the mechanisms of how customer involvement influences innovation outcomes.

Relevant studies are typically based on data from one respondent per firm. To increase the validity of the results, two important methodological approaches are outlined. One is multiple within-firm respondents or dyadic (firm and customer side) survey approaches. The other approach is to combine perception-based measurements with objective metrics, and I also see some examples in the literature; for example, the number of patents or the number of sold products as a proxy for the intensity of innovation (Pee, 2016; Saldanha, Mithas, & Krishnan, 2017).

This study, like every study, has limitations that should be noted. My study was limited by its primary focus on the new product and service development aspect of innovation; thus, I did not cover studies that investigated the effect of customer involvement on process innovation (e.g., the adoption of a new production procedure or information technology system). I also did not cover the antecedents of customer involvement. In addition, I concentrated on studies that quantify the impact of customer involvement on innovation, which excluded exploratory research.

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