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CONCEPTUAL/THEORETICAL PAPER

Customer insights for innovation: A framework and research agenda for marketing

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Abstract

Customer insights play a critical role in innovation. In recent years, articles studying customer insights for innovation have risen in marketing and other fields such as innovation, strategy, and entrepreneurship. However, the literature on customer insights for innovation grew fragmented and plagued by inconsistent definitions and ambiguity. The literature also lacks a precise classification of different domains of customer insights for innovation. This article offers four key contributions. First, it clearly and consistently defines *customer insights for innovation*. Second, it proposes a "customer insights process" that describes the activities firms and customer insights intermediaries (e.g., market research agencies) use to generate, disseminate, and apply customer insights for innovation. Third, it offers a synthesis of the knowledge on customer insights for innovation along ten domains of customer insights for innovation: (1) crowdsourcing, (2) co-creating, (3) imagining, (4) observing, (5) testing, (6) intruding, (7) interpreting, (8) organizing, (9) deciding, and (10) tracking. Fourth, the authors qualify and quantify the managerial importance and potential for scholarly research in these domains of customer insights for innovation. They conducted 12 in-depth interviews with executives at market research agencies such as Ipsos, Kantar, Nielsen, IQVIA, and GfK to do so. They surveyed 305 managers working in innovation, marketing, strategy, and customer experience. The article concludes with a research agenda for marketing aimed at igniting knowledge development in high-priority domains for customer insights for innovation.

Keywords Customer insights · Innovation · Insight generation · Insight dissemination · Insight application · Market research

Innovation success relies heavily on understanding customer needs, which has elevated the importance of customer insights for innovation up to the boardroom. Most CEOs recognize the importance of customer insights in innovation but are often dissatisfied with their firms' ability to effectively generate, disseminate, and apply them (Chief Executive, 2021). A recent study by Kantar Worldpanel (2022) reports that 61% of new product launches fail within their first two years, mainly due to insufficient customer understanding. Academics across business disciplines also see customer insights for innovation as a high-priority research area. For instance, the Marketing Science Institute (2022) identifies the question of "How should firms best use customer insights to fuel growth?" as a top research priority.

Prior marketing literature affirms the significance of customer insights to innovation success. Kyriakopoulos and Moorman (2004) advocate using market exploitation activities to generate customer insights for innovation. Day (2011) identifies "deep market insights" as a vital marketing capability for understanding rapidly evolving markets. Other researchers

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suggest that disseminating customer insights within firms enhances employees' ability to recognize opportunities and foster innovation (Grinstein, 2008; Webb et al., 2011).

Given the importance of customer insights for innovation, one would expect academics in marketing, innovation, strategy, and entrepreneurship to have generated the answers firms need to leverage customer insights effectively in their innovation decisions. However, the existing literature is fragmented across disciplinary silos (e.g., marketing, innovation, strategy, and entrepreneurship), preventing firms, customer insights intermediaries (e.g., market research agencies), and scholars from fully leveraging the potential of customer insights for innovation.

We identify three main shortcomings in the prior literature. First, published studies use inconsistent terminology when referring to customer insights for innovation, with some authors avoiding formal definitions, others defining the construct only through examples, or using terms that refer to distinct phenomena interchangeably. Second, the literature lacks a structured review of how to effectively use customer insights for innovation. Third, it is not clear what the most significant gaps in our current knowledge base are that can fuel future research on customer insights for innovation.

This paper attempts to address these gaps. Adopting a conceptual lens (Yadav, 2010), we employ a robust methodology to delineate domains within *customer insights for innovation*.[1] We reviewed 284 articles published over the past 50 years in FT50 academic journals. Next, we synthesized this literature along ten *domains of customer insights for innovation*,[2] i.e., coherent literature streams that share concepts, theories, methods, or practices. Building on the main learnings across these domains, we developed a framework to describe the *customer insights process*, i.e., the set of activities that firms use to generate, disseminate, and apply customer insights for innovation. We then validated and refined both the domains and the process of customer insights by (1) interviewing 12 executives from major market research agencies (e.g., Ipsos, Kantar, Nielsen, IQVIA, and GfK) and (2) surveying 305 marketing, innovation, and customer experience (CX) managers from diverse industries. We combined data from these interviews and surveys to pinpoint the most critical knowledge gaps across the ten domains we identified. By doing so, this paper offers the following contributions relevant to three primary audiences: business scholars, firms' marketing and innovation decision-makers, and customer insights intermediaries.

First, we offer a clear definition of *customer insights for innovation:* a *reasoned understanding of customers' attitudes and behavior that firms can innovate upon*. We provide precise definitions for each semantic component of this construct rooted in prior marketing, innovation, strategy, and entrepreneurship literature. An unambiguous definition makes it easier for scholars across disciplines to build on each other's research and advance knowledge of customer insights for innovation.

Second, we develop a framework that clarifies the *customer insights process,* i.e., the set of activities that firms use to generate, disseminate, and apply customer insights in their innovation decisions. This process encompasses six activities: (1) generating customer data, (2) confronting new and old information, (3) sensemaking, (4) visualizing, (5) applying, and (6) tracking. The process also incorporates feedback loops, formulated as questions, that firms can follow to improve how they leverage customer insights for innovation decisions iteratively.

Third, we synthesize knowledge on customer insights for innovation along ten domains, each representing a common theme within the customer insights for innovation literature. These ten domains are: (1) crowdsourcing, (2) co-creating, (3) imagining, (4) observing, (5) testing, (6) intruding, (7) interpreting, (8) organizing, (9) deciding, and (10) tracking. Our synthesis can help researchers and practitioners understand the existing literature and extract its implications.

Fourth, we offer a research agenda for business scholars leveraging our literature synthesis, data from interviews with customer insights intermediaries, and an online survey with managers. Our findings should help firms and customer insights intermediaries better exploit customer insights for innovation and encourage academics to steer their future research in specific, high-impact directions.

Methodology

Figure 1 graphically depicts the methodology we adopt in this paper. We first searched the literature to identify domains and activities within the generation, dissemination, and application of customer insights for innovation (Step 1). We sampled articles published since 1970 in academic journals featured in the 2023 Financial Times' Top 50 journal list (FT50), which are widely recognized as representative of the major journals across business and management disciplines (Palmatier, 2018). In total, we reviewed 284 articles.[3] Web Appendix A provides

[1] Our focus on customer insights for innovation stems from its scholarly importance (we counted nearly 10,000 scientific articles on the topic on Google Scholar across all journals) and their unique role in verifying and matching customer needs with innovative solutions (Chuang et al., 2014). As advocated by Stremersch et al. (2023), this importance and uniqueness validate a context-specific treatment.

[2] For brevity, in the remainder of this article we often refer to *domains of customer insights for innovation* simply as *domains*.

[3] Among the 284 articles, we included 53 articles published in three non-FT50 journals (*California Management Review, International Journal of Research in Marketing,* and the *Journal of Product Innovation Management*), because of the impact they had on the knowledge about customer insights for innovation.

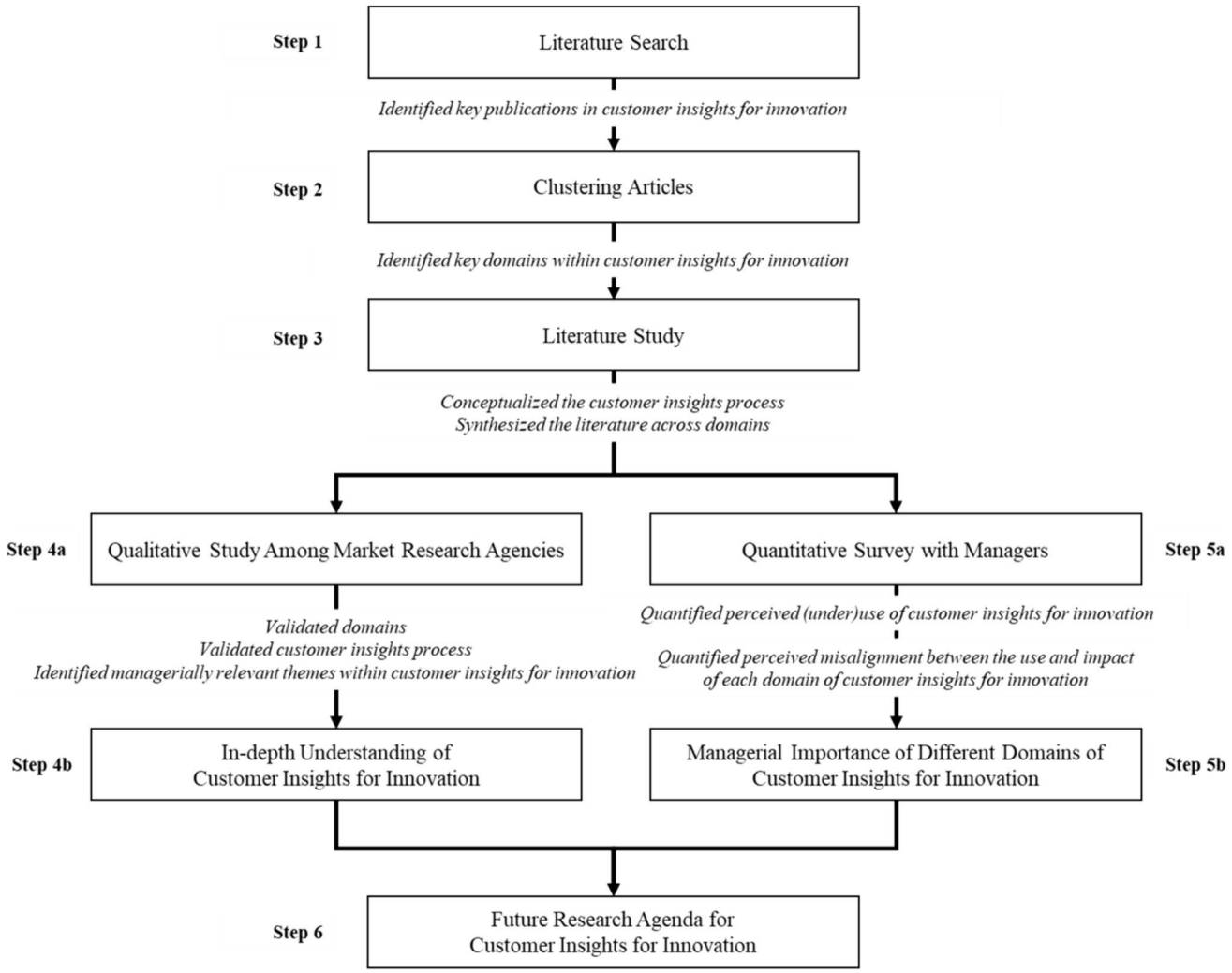

Fig. 1 Methodology

additional details on our literature search procedure, including the keywords we used. Web Appendix B gives a complete bibliography with all the publications we reviewed, organized by domain.

In Step 2, the second and fourth authors preprocessed existing articles and grouped them into a preliminary set of topical clusters. Subsequently, the first, second, and fourth authors reevaluated and challenged these clusters and reclassified articles into *domains*—i.e., coherent literature streams that share a set of concepts, theories, methods, or practices—within customer insights for innovation. Next, the four authors iteratively refined these domains until they were confident that all articles were accurately classified within a domain or discarded due to a lack of fit.[4]

In Step 3, we studied the literature from Step 1 in two ways. First, we developed a framework that clarifies the *customer insights process,* i.e., firms' activities to generate, disseminate, and apply customer insights for innovation. Second, for each of the ten domains identified in Step 2, we synthesized the main findings from prior literature and identified potential gaps in each domain.

In Step 4a, we conducted 12 qualitative interviews with customer insights intermediaries, i.e., executives at 11 of the world's largest market research agencies, ranging from large generalist firms that conduct customer research across various industries and sectors (e.g., Ipsos, Kantar, and Nielsen) to more specialized research agencies focused on specific sectors (e.g., IQVIA and GfK) or areas of expertise (e.g., ZS Associates). Web Appendix C provides additional details on our interviews, including anonymized characteristics of our interviewees, all of whom are senior analysts or executives with more than ten years of industry experience and

[4] We excluded 36 articles that did not fit in any of the 10 identified domains.

who are thus good informants (Homburg et al., 2012). With the permission of the interviewees, we recorded and transcribed all interviews to generate an in-depth understanding of customer insights for innovation (Step 4b). Specifically, we prompted interviewees to (1) validate our ten domains, (2) validate our customer insights process, and (3) uncover key managerially relevant themes within customer insights for innovation.

For Step 5a, we ran a survey using Dynata's executive panel. Our data includes responses from 305 managers in marketing, strategy, innovation, and customer experience (CX) who live and work in the U.S. From this survey, we quantified, per domain, (1) the perceived under or overuse of customer insights for innovation, and (2) their correlation with innovation performance. Next, we quantified the alignment between self-reported use and the impact of different domains on innovation performance to identify the managerial importance of these domains (Step 5b). Web Appendix D gives additional details on our managerial survey, and Web Appendix E reports the complete survey instrument.

In Step 6, we mapped the knowledge gaps and the need for further research based on our in-depth understanding of the different domains (Steps 4 and 5). This step allows us to derive a set of evidence-based suggestions for future research directions in customer insights for innovation.

Customer insights for innovation

This section first explains the inconsistent use of terminology in prior literature. It then defines customer insights for innovation and conceptualizes the customer insights process.

Inconsistent use of terminology

Existing studies either do not define customer insights or use inconsistent terminology. For example, many authors refer to customer insights for innovation without formally defining it, or they define it only through examples (e.g., Day, 2011; Kyriakopoulos & Moorman, 2004). Other authors use the term '*insights*' inconsistently across studies. For example, Hamilton (2016) refers to *consumer insights* as "an understanding of consumers' wants and needs" (p. 281). In contrast, Berger et al. (2020) define *marketing insights* as a firm's ability to "predict and understand." These inconsistencies may stem from the unique roles customer insights play across different application areas (i.e., some customer insights studies focus on innovation, others in other areas of marketing). In particular, the unique role of customer insights in innovation calls for a context-specific definition (e.g., Stremersch et al., 2023). Thus, we next offer a precise definition of customer insights for innovation.

Definition

We define *customer insights for innovation* as a *reasoned understanding of customers' attitudes and behaviors that firms can innovate upon*. These different terms merit precise definitions.

First, customer insights need to be *reasoned*. We use the term "reasoned" to refer to the mental process required to draw new conclusions from customer data. This mental process is akin to Kahneman's (2003) System 2, i.e., deliberate, and effortful cognitive operations based on logical deduction or careful analysis. In other words, effortless hunches or gut feelings obtained solely through intuition cannot be considered "customer insights." Note that the definition of "reasoned" implies that insights only occur when decision-makers draw *new* conclusions from customer data, which requires confronting new and prior information.[5] Redundant information triggers effortless and intuitive processing rather than deliberate reasoning (Morewedge & Kahneman, 2010). Similarly, psychologists argue that insights imply fresh information that can transform decision-makers' mental models (i.e., what Klein (2015) calls "aha moments").

Second, customer insights should help a firm *understand* the customers for its innovations. Indeed, most dictionaries define "insight" as an "understanding of someone or something" (e.g., Oxford Languages Dictionary or the Cambridge University Press Dictionary). Existing definitions of "customer insights" in marketing, even though inconsistent in many respects, tend to share a reference to "understanding" as a hallmark of insight (e.g., Kotler et al., 2018). Understanding means that an "insight" must help a manager better comprehend the reasons for customer behavior or predict future behavior (e.g., Berger et al., 2020). Thus, new information that does not advance a firm's understanding of customers' behavior cannot be considered a "customer insight."

Third, customer insights for innovation concern the understanding *of* customers and not necessarily *from* customers. While nuanced, this distinction is fundamental. Customer insights need to increase our understanding of customers but do not necessarily originate from customers. For example, managers use mental simulation to imagine customers and gain fresh insights into their needs and preferences without traditional customer input. Such mental simulation processes often lead to "aha" moments where

[5] Note that we are not implying that customer insights always require new *data*. It is crucial to distinguish between *data*, which are factual (like measurements), and *information*, which is the meaning one extracts from the data and requires formatting, structuring, and organizing the data (e.g., McDowel, 2021).

managers experience sudden realizations about customers' behavior.

Fourth, understanding customers requires firms to understand customers' *attitudes and behaviors* (Ganesh et al., 2000). *Attitudes* are general evaluations of an object (e.g., a product or service), formed over time (Solomon, 2019). They encompass three core components: affective (i.e., emotions and feelings), cognitive (beliefs and thoughts), and behavioral (i.e., predispositions to act) (Ostrom, 1969). Think of affective attitudes as customers' emotional responses to a new home cleaning service; if the service aligns with their preferences and solves their needs for a spotless home, customers will feel delighted. For cognitive attitudes, consider customers' concerns about the user-friendliness of a new product and whether it requires extensive learning. A firm may take appropriate actions to address these concerns and improve adoption rates. Regarding behavioral attitudes, imagine a child eager to use the latest gaming console while her parents may be concerned about screen time and its impact on the child's skills. By recognizing these concerns, the firm can innovate on features that address both viewpoints, such as adding educational content and/or time management controls.

Customer *behavior* includes all actions related to buying, using, and disposing of products and services (Kotler et al., 2018). This includes purchase behavior, consumption behavior, and post-purchase behavior. For purchase behavior, consider an innovative firm entering the market with a new line of premium skincare products with advanced anti-aging technology, seeking to understand the habitual purchasing behavior of loyal skincare customers. For consumption behavior, consider a subscription-based streaming service gauging customer satisfaction and engagement, to develop new content or improve existing content. For post-purchase behavior, understanding how consumers dispose of products helps firms implement circular economy principles and comply with environmental regulations.

Fifth, firms should be *able to innovate upon* the customer insights they obtain.[6] By "able to innovate upon," we mean that customer insights for innovation must contribute to innovation decisions. Our view is consistent with prior views arguing that insights must create customer value (Kotler et al., 2018) and support firms' strategic decisions (Hamilton, 2016). According to these views, customer insights must be actionable, i.e., firms must be able to act upon their reasoned understanding of customers' attitudes and behaviors. In the context of innovation, to be actionable, customer insights must help firms avoid wrong decisions or make short- or long-term innovation decisions to achieve desirable innovation outcomes.

Note that in customer insights for innovation, we deliberately use the term customer—rather than consumer—insights. A *customer* determines or influences the purchase of a good or service, whereas a *consumer* is the user of a good or service (Applebaum, 1951). This distinction is essential. For instance, "purchasers of rat poison are not the consumers of the product" (Applebaum, 1951; p. 172). Thus, we use the term "customer" broadly to include actual and potential buyers, users, payers, and influencers of purchasing and consumption decisions. For instance, in an industry such as life sciences, our broad usage of the term "customer" includes patients who use a drug, doctors who prescribe a drug, healthcare insurers who pay for a drug, or any agent who may influence a patient's start on and compliance with a drug regimen.

The customer insights process

Next, we conceptualize the *customer insights process* (Step 3 in our methodology), as depicted in Fig. 2, which introduces our framework for customer insights for innovation. This framework is partly based on Roberts et al.'s (2014) marketing science value chain. Our approach differs from theirs by focusing on generating, disseminating, and innovating upon customer insights, which aligns closely with market orientation conceptualizations (Jaworski & Kohli, 1993), rather than focusing on the generation, conversion, and application of marketing science knowledge. Additionally, we emphasize six *activities* that firms use to generate customer data, interpret, and disseminate customer insights from such data (i.e., confronting, sensemaking, visualizing), and innovate upon such insights (i.e., applying and tracking). We now discuss these activities, each in turn.

First, firms begin by (1) *generating customer data*, which helps ground their decisions in facts and deliberate reasoning rather than just gut feeling (Wedel & Kannan, 2016). Second, firms must extract and disseminate meaningful insights from such data, which requires three activities: (2) *confronting* new information with prior information to create new or revise existing mental models that improve customer understanding (Klein, 2015); (3) *sensemaking,* i.e., finding explanations for one's mental models (Weick, 1995); and (4) *visualizing* these explanations to make them easier to report and disseminate (Guterman & Tufte, 2009).[7] Third,

[6] While one can conceive a more general definition applicable (e.g., "able to *act* upon" rather than "able to *innovate* upon"), the unique role of customer insights in innovation calls for a context-specific definition.

[7] Visualizing one's explanations facilitates communication and invites scrutiny, improving our customer understanding. Note also that the definition of 'visualizing' is to form a mental image or 'to envisage,' which can be accomplished both through visual techniques (e.g., charts and figures) or verbal techniques (e.g., storytelling).

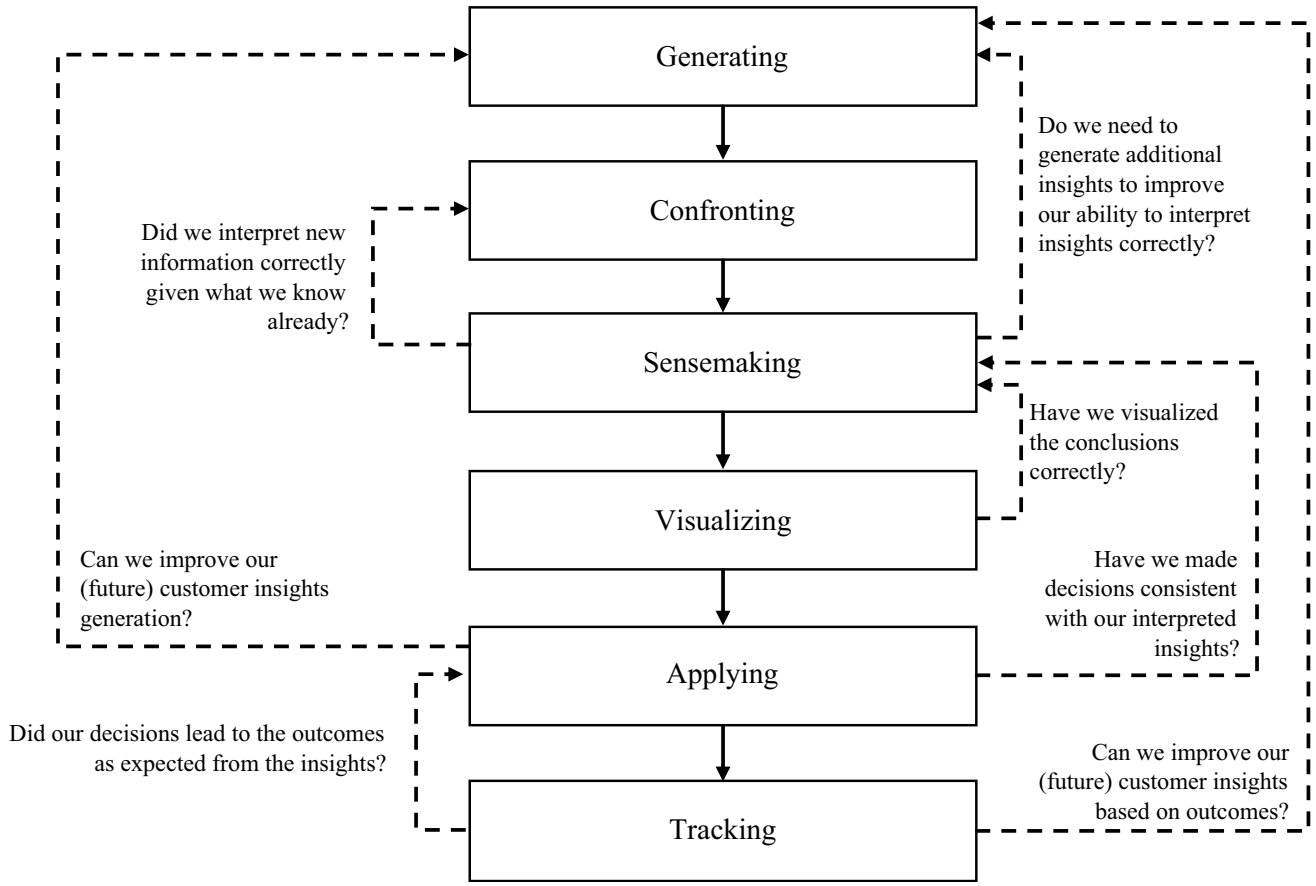

Fig. 2 The customer insights process

firms must innovate upon the resulting insights by (5) *applying* them in their innovation decisions and (6) *tracking* the outcomes of their innovation decisions over time.

In the framework introduced in Fig. 2, we suggest that firms follow a linear six-step process, but we also allow feedback loops (dashed arrows). These feedback loops capture firms' efforts to validate customer insights at different steps. For example, when trying to make sense of newly collected data (sensemaking), managers may wonder whether they are interpreting new information correctly given what they know already. The steps and feedback loops in Fig. 2 help firms develop a reasoned understanding of customers' attitudes and behaviors, upon which they can innovate.

To better understand the customer insights process depicted in Fig. 2, let us look at an example of crowdsourcing. Crowdsourcing involves a large group of dispersed participants contributing to tasks in innovation. A key benefit of crowdsourcing is that it helps firms obtain better customer insights (Bayus, 2013). In many crowdsourcing initiatives, firms begin by asking a large group of customers (the "crowd") to submit innovation ideas. These ideas *generate* valuable data on customer needs. To decide which ideas to invest in, firms may first *confront* the ideas submitted by customers with internal data and highlight new insights obtained from the crowd. The firm can then *make sense* of those new insights and *visualize* how they would impact its innovation decisions and activities. Finally, the firm can *apply* these insights by making innovation decisions and *tracking* the impact of such decisions over time.

We now illustrate the customer insights process with an example from a Swiss insurer that combined qualitative and quantitative methods. Aiming to create innovative insurance policies for new target customers, this insurer initially organized an ideation workshop, inviting employees to *generate* new product concepts. One of the ideas targeted pet owners. Next, they interviewed pet owners to understand how well their lifestyle and insurance needs matched the company's new product concepts (*confronting*). They then organized a second workshop with relevant internal stakeholders to extract conclusions from the resulting insights (*sensemaking*), leading to refined new product ideas. The best ideas were *visualized* in a 'mock-up' and tested with target customers using survey-based conjoint analysis to identify different segments and determine willingness-to-pay for each

segment. The company then launched the most appealing concepts (*applying*) and monitored their market performance and customer satisfaction (*tracking*).

Domains of customer insights for innovation

Next, we synthesize the main literature findings on customer insights for innovation across disciplines (i.e., marketing, innovation, strategy, and entrepreneurship). We delineate ten distinct domains of customer insights for innovation (see Fig. 3).

Table 1 describes each of the ten domains we identified. The second column presents the definition of each domain. Each domain in the customer insights for innovation literature represents a cohesive stream that shares concepts, theories, methods, or practices. Some domains refer to specific methods that firms employ to generate customer data (e.g., observing, testing, and intruding), others refer to steps they must undertake to extract and disseminate customer insights (e.g., interpreting), whereas others refer to steps they must undertake to apply those insights in their innovation decisions (organizing, deciding, and tracking). We derived columns 3 to 6 from the literature review and the article clustering (Steps 1–3). The third column summarizes the theoretical roots of each domain. The fourth column outlines the representative journals for each domain (i.e., the journals with the highest number of papers in the corresponding domain). The fifth column cites selected representative papers of each domain. The sixth column summarizes key findings in each of the domains. In the subsequent subsections, we review these ten domains.

Crowdsourcing

Crowdsourcing involves a large group of dispersed participants (i.e., the "crowd") contributing to tasks in innovation. For instance, companies often use open calls to request a large crowd of customers to submit their innovative ideas (Afuah & Tucci, 2012; Bayus, 2013). Crowdsourcing helps firms tap into "better, faster, and cheaper" customer insights for innovation than those provided by traditional market research (Bayus, 2013; p. 227).

Prior research has explored three key areas. First, it identifies key drivers of the quality of crowdsourced customer insights, such as how to choose and manage crowdsourcing platforms (El Sawy et al., 1999) and who are the successful contributors to crowdsourcing activities (Bayus, 2013; Schemmann et al., 2016).

Second, prior literature examines the role of different incentives in the quality of crowdsourced insights. For instance, scholars have shown that monetary rewards influence output quality in crowdsourcing innovation and should be tailored to the type of innovation being pursued (Ales et al., 2017). Other scholars advocate combining intrinsic and extrinsic rewards to maximize the quality of crowdsourced customer insights (Acar, 2019).

Third, prior literature shows that exposing customers to each other's ideas stimulates participation intensity

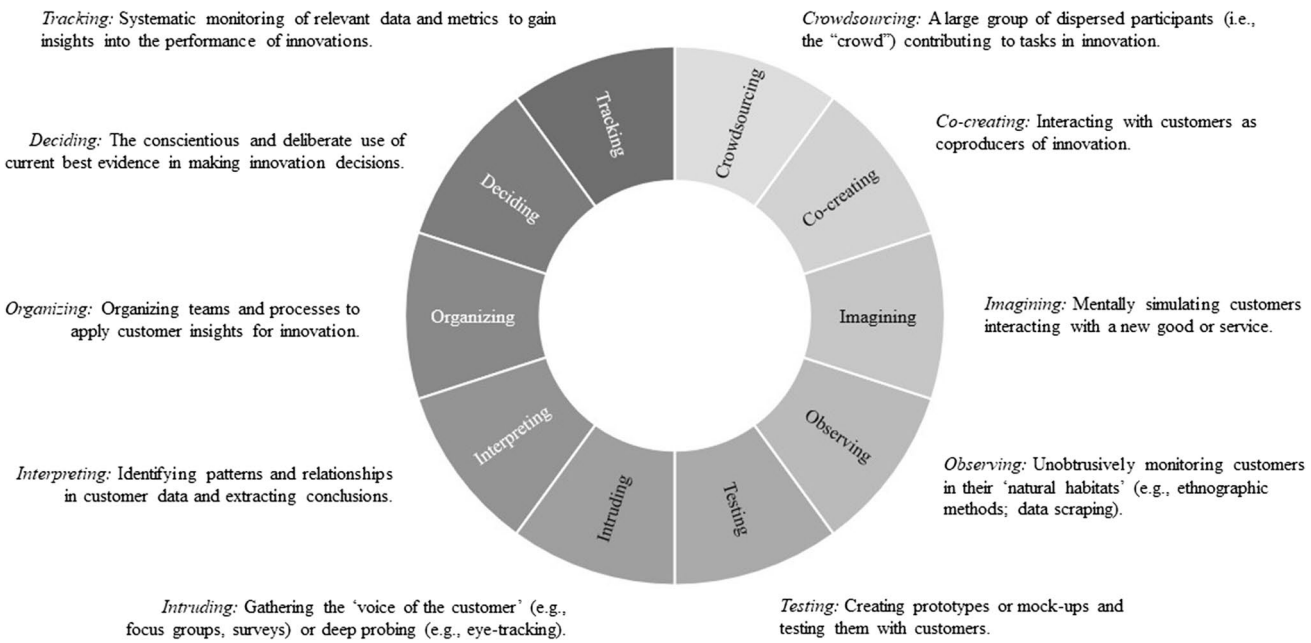

Fig. 3 Customer insights for innovation domains

Table 1 Overview of the customer insights for innovation literature

Domain	Definition	Theoretical Roots	Representative Journals*	Representative Paper(s) [Recency]	Key Take-Aways
Crowdsourcing	A large group of dispersed participants (i.e., the "crowd") contributing to tasks in innovation	Open systems Tournament theory Wisdom of crowds	AMJ, MGS, REP, MISQ, POMS	Afuah and Tucci (2012) Bayus (2013) *[Seminal papers: 2000s; renewed interest in the last 10 years]*	■ Large crowds and high-quality platforms lead to better insights ■ Monetary and intrinsic rewards improve the quality of crowdsourced insights ■ High customer participation intensity leads to better insights
Co-creating	Interacting with customers as coproducers of innovation	Customer co-production Effectuation Lead user theory	AMR, HBR, JAMS, JM, MGS, SMR	Payne et al. (2008) Von Hippel (1978) *[Seminal papers: 1970s; most papers in the last 10–20 years]*	■ Co-creation works best with lead users and highly interconnected customers ■ Co-creation is more effective when needs are tangible and easy to express ■ Co-creation works best in the fuzzy front-end of innovation
Imagining	Mentally simulating customers interacting with a new good or service	Divergent thinking Perspective taking Theory of mind	JCP, JCR, JMR, SMJ	Dahl et al. (1999) Dougherty (1992) Zhao et al. (2014) *[Seminal papers: 1990s; most papers in the last 10 years]*	■ Imagining frees innovators from organizational and market constraints ■ Training and tooling help innovators with imagining ■ Innovators with direct customer experience are better at imagining
Observing	Unobtrusively monitoring customers in their 'natural habitats' (e.g., ethnographic methods; data scraping)	Ethnography Response models	HBR, JCR, JAMS, JM, JMR, MKS	Balducci and Marinova (2018) Berger et al. (2020) Kozinets (2002) *[Seminal papers: 1950s; renewed interest in the last 10 years]*	■ Observing offers a 'thicker' understanding of customers ■ Observing is particularly advantageous during the ideation stage of innovation ■ It is important to maintain objectivity and a balanced perspective when observing
Testing	Creating prototypes or mock-ups and testing them with customers	Experimentation Lean methods Prototyping	AMJ, HBR, JPIM, SEJ	Leatherbee and Katila (2020) Thomke (2006) *[Seminal papers: 1960s; renewed interest in the last 10 years]*	■ Testing is often seen as a gold standard in customer insights for innovation (e.g., lean startup paradigm) ■ Techniques such as information acceleration, prototyping, and virtual reality help make testing more efficient

Table 1 (continued)

Domain	Definition	Theoretical Roots	Representative Journals*	Representative Paper(s) [Recency]	Key Take-Aways
Intruding	Gathering the 'voice of the customer' (e.g., interviews, focus groups, surveys) or deep probing (e.g., eye-tracking)	Conjoint analysis Market research Phenomenology Psychometrics Qualitative methods	CMR, JCR, JAMS, JM, JMR	Griffin and Hauser (1993) Rangaswamy and Lilien (1997) *[Seminal papers: 1920s; most papers published 20+years ago]*	■ Self-reported methods (e.g., surveys) suffer from known biases and, thus, must be debiased for reliable insight generation ■ In focus groups, too much moderator control reduces group productivity, and too little results in wasted time ■ Metaphoric images can enrich customer feedback during interviews ■ New techniques like mobile diaries and real-time trackers offer rich opportunities for capturing valuable customer insights
Interpreting	Identifying patterns and relationships in customer data and extracting conclusions	Sensemaking Triangulation	HBR, JMR, JPIM, MGS, OSCI	Madsbjerg and Rasmussen (2014) Bettencourt and Ulwick (2008) *[Seminal papers: 1980s; most papers in the last 10 years]*	■ The sensemaking inputs from members in different company functions are necessary for effective new product design ■ Using different data collection techniques can lead to a more accurate interpretation of a phenomenon and to better product design decisions
Organizing	Organizing teams and processes to apply customer insights for innovation	Cross-functional integration Organizational learning Network theory	JM, OSCI, OST, REP, SMJ	Carlile (2002) Moorman and Miner (1998) Reypens et al. (2021) *[Seminal papers: 1990s; most papers 20+years ago]*	■ More flexible organizational structures (e.g., task forces or centers of excellence for insights) facilitate cross-fertilization and collaboration with external agents ■ Engaging external contributors is valuable. Firms can do so by using proactive attention (i.e., submitting proposals to stimulate debate) and reactive attention (i.e., signaling to externals that they are being listened to)

Table 1 (continued)

Domain	Definition	Theoretical Roots	Representative Journals*	Representative Paper(s) [Recency]	Key Take-Aways
Deciding	The conscientious and deliberate use of current best evidence in making innovation decisions	Decision theory Evidence-based management Lay rationalism	HBR, JAMS, REP, SEJ, SMJ	Dayan and Di Benedetto (2010) Webb et al. (2011) *[Seminal papers: 2000s; most papers 10 + years ago; recent renewed interest]*	■ The use of customer data and insights improves the quality of innovation decisions ■ Integrating insights from multiple sources improves collaboration, accuracy, and decision quality ■ Combining intuition with data helps resolve disagreements and enhance the quality of innovation decisions, especially when it leverages the expertise of experienced managers
Tracking	Systematic monitoring of relevant data and metrics to gain insights the performance of innovations	Learning orientation Market orientation Metrics	ETP, JAMS, JM, JPIM	Grinstein (2008) Han et al. (1998) *[Seminal papers: 1990s; most papers published between 10 and 20 years ago]*	■ Firms that actively track innovation performance and disseminate such insights outperform competitors in terms of innovation outcomes ■ Firms should use a variety of post-launch metrics (e.g., financial, marketing) to track their innovations ■ Post-launch data and metrics are influenced by several contingency factors that influence firms' innovation performance

* Journal abbreviations: AMJ = *Academy of Management Journal*, AMR = *Academy of Management Review*, CMR = *California Management Review,* ETP = *Entrepreneurship Theory and Practice*, HBR = *Harvard Business Review*, ISR = *Information Systems Research*, JAMS = *Journal of the Academy of Marketing Science*, JAP = *Journal of Applied Psychology*, JBV = *Journal of Business Venturing*, JCP = *Journal of Consumer Psychology*, JCR = *Journal of Consumer Research*, JM = *Journal of Marketing*, JMIS = *Journal of Management Information Systems*, JMR = *Journal of Marketing Research*, JPIM = *Journal of Product Innovation Management,* MGS = *Management Science*, MKS = *Marketing Science*, MISQ = *MIS Quarterly*, OSCI = *Organization Science*, OST = *Organization Studies*, POMS = *Production and Operations Management*, REP = *Research Policy*, SMR = *Sloan Management Review*, SEJ = *Strategic Entrepreneurship Journal*, SMJ = *Strategic Management Journal*

(Schemmann et al., 2016). However, Stephen et al. (2016) note that this exposure can trigger cognitive fixation and redundancy, reducing the quality of crowdsourced insights.

Co-creating

Co-creating involves interacting with customers as active participants in innovation, a long-standing innovation practice across many industries (Payne et al., 2008; Von Hippel, 1978). Unlike crowdsourcing, co-creation requires firms to remain actively involved in innovation while tapping into specialized customer knowledge through active customer interaction (Kratzer & Lettl, 2009).

Research on co-creating customer insights for innovation can be categorized into three streams. First, scholars have identified suitable customers for co-creation, such as lead users (Alam, 2002), key opinion leaders (Wu et al., 2022), or highly interconnected customers (Fang, 2008). Analyzing customers' network positions can help select the right customers for co-creation (Kratzer & Lettl, 2009).

Second, the effectiveness of co-creating insights depends on the nature of customer needs. Co-creation is less effective for highly tacit or difficult-to-express needs (Cui & Wu, 2016). To overcome these challenges, firms should involve customers in distinct roles (e.g., latent need source, co-developer, approver, or sounding board), enabling them to tap into diverse areas of expertise and gain valuable insights (Coviello & Joseph, 2012).

Third, co-creation is particularly beneficial in the fuzzy front end of innovation (Chang & Taylor, 2016). Specifically, co-creation stimulates creativity, harnesses diverse perspectives, and facilitates the exploration of novel information.

Imagining

Imagining refers to mentally simulating customers interacting with a new good or service (Elder & Krishna, 2022). Unlike classic market research methods that rely on customers as the primary source of insights, imagining taps into innovators' creativity and their ability to envision customers interacting with yet-to-be-launched innovations.

We synthesize prior literature in three streams. The first literature stream explores the effectiveness of imagining in generating customer insights. Dougherty (1992) argues that imagining frees innovators from constraints, enabling them to develop a deep understanding of customer problems and generate valuable insights. Dahl et al. (1999) show that well-executed imagining enhances an innovation's appeal and market success. Herd and Mehta (2019) show that these benefits occur because imagining fosters empathy and creativity, thereby leading to better customer insights.

The second literature stream proposes tools and techniques to stimulate creativity during imagining. The key finding of this stream is that upskilling and effective communication during imagining enhance innovators' capacity to generate valuable customer insights. For example, Burroughs et al. (2011) show that creativity training programs enhance imaginative thinking and the quality of mentally simulated customer scenarios. Zhao et al. (2014) find that using abstract language and visualization techniques enhances creativity during imagining.

The third literature stream explores contingency factors influencing the effectiveness of imagining. Elder and Krishna (2022) suggest that innovators with prior experiences with a specific customer type can better mentally simulate how such customer types would interact with new products. These findings indicate that passionate and experienced innovators are more effective at imagining than their less experienced counterparts.

Observing

Observing involves unobtrusively monitoring customers in their 'natural habitats' (Arnould & Wallendorf, 1994). Firms use ethnographic methods to observe customers in physical environments (Muniz & O'Guinn, 2001) and netnographies to observe customers online (Kozinets, 2002). Data scraping techniques (e.g., Berger et al., 2020) also help firms unobtrusively analyze customers' digital footprints.

Our literature review highlighted three complementary literature streams related to observing as a source of customer insights for innovation. First, scholars have studied when and why observing is an effective strategy to generate customer insights. Unobtrusively monitoring customers in their 'natural habitats' is particularly advantageous during the ideation stage of innovation, as it offers a 'thicker' understanding of customers' attitudes and behaviors. By observing customers unobtrusively, firms develop a human-centric perspective on how their innovations may impact customers' lives, as advocated by design thinking and jobs-to-be-done (Brown, 2008).

Second, scholars have also examined tools and techniques to help innovators better observe customers (Muniz & O'Guinn, 2001). More recently, digital scraping techniques have emerged as cost-effective methods to unobtrusively observe customers to identify needs, trends, and innovation opportunities (Timoshenko & Hauser, 2019). A particularly active and promising area of research is using text analysis and text mining to capture customer insights from user-generated content (Balducci & Marinova, 2018; Berger et al., 2020). By analyzing customers' digital footprints, firms can gain valuable insights without intruding on their privacy.

Third, scholars have also advocated the use of 'deep probing' tools like eye-tracking, functional magnetic resonance imaging (fMRI), biometric sensors, and galvanic skin response. Even though these tools are typically not applied

in customers' 'natural habitats,' they obviate the need for self-reported data. For example, Wedel et al. (2023) emphasize the importance of eye-tracking data to understand customers' decisions and improve the accuracy of self-reported methods. Some scholars advocate neuro-imaging techniques like functional magnetic resonance imaging (fMRI) to map customers' brain activity and capture more precise insights about customer behavior (Zak, 2022).

Testing

Testing involves creating prototypes or mock-ups and testing them with customers (Thomke, 2006). Testing is often touted as the 'gold standard' in innovation validation over traditional intruding techniques such as surveys, focus groups, or conjoint analysis (Srinivasan et al., 1997). For instance, under the leadership of CEO John Donahoe, eBay prioritized experimentation to test every feature of an auction, gather customer feedback, and use the resulting insights to drive innovation and enhance customer experience (Donahoe, 2011).

Two major literature streams are relevant to customer insights for innovation. The first stream demonstrates and quantifies the benefits of testing for innovation. For example, Thomke and colleagues underscore the significant benefits of testing, positioning it as an essential tool for driving successful innovation strategies (Thomke, 2006; Thomke et al., 1998). More recently, proponents of scientific-driven approaches to entrepreneurship, such as the lean startup, have also explored the benefits of testing and selected experimentation as their preferred method to generate customer insights for innovation (Leatherbee & Katila, 2020).

The second literature stream focuses on how firms can optimize testing when generating customer insights for innovation. Anderson and Simester (2011) offer several tips on how firms can run smarter business experiments. These range from simple treatments and manipulations to focusing on individual responses (rather than segment-level ones). Researchers have studied prototyping techniques to improve the testing of innovations (Thomke, 1998). Even simple tests like A/B tests must be carefully designed to suit each innovation and help firms understand customers. For instance, Bosch-Sijtsema and Bosch (2015) show that different types of A/B tests are valuable at different stages of an innovation process.

Intruding

Intruding is gathering the 'voice of the customer' through interviews, focus groups, surveys, and conjoint analysis (Griffin & Hauser, 1993; Rangaswamy & Lilien, 1997). The literature on intruding methodologies spans three subdomains: self-reported methods, conjoint analysis, and simulation techniques. Self-reported methods have a long tradition in marketing—for instance, pioneers like Starch (1923) and Gallup (1930) popularized interviews and surveys. Focus groups were first popularized in the 1950s by sociologists like Robert Merton and later adopted in marketing to generate customer insights for innovation (Calder, 1977). Self-reported methods suffer from known biases, but careful design and analysis of self-reported data can help debias these methods and elicit deeper insights (Hulland et al., 2018). Technological advances have enabled marketers to gather new self-reported insights through mobile diaries (Lovett & Peres, 2018) or real-time moment-to-moment trackers (Hui et al., 2014).

Conjoint analysis was introduced by Green and Rao (1971) and refined over the following decades. Louviere and Woodworth (1983) pioneered discrete choice experiments (DCEs) where subjects must evaluate and choose between different alternatives instead of ranking or rating profiles as in (standard) conjoint analysis. Despite its long tradition in marketing, research in this area remains active, focused on technical refinements such as estimating benefit preferences and improving estimation accuracy (Hauser et al., 2019).

Simulation techniques involve mimicking a market environment to expose customers to realistic market information, thereby improving the accuracy of the 'voice of the customer.' For instance, information acceleration, introduced by Urban et al. (1997), 'accelerates' customers' awareness and understanding of new products to understand their preferences and purchase likelihood. Other scholars advocate using technologies such as augmented reality (AR) and virtual reality (VR) to simulate realistic market environments and capture more precise 'voice of the customer' insights (e.g., Burke, 1996).

Interpreting

Interpreting is identifying patterns and relationships in customer data and extracting conclusions that can be shared with others, i.e., making sense of observations and data (Madsbjerg & Rasmussen, 2014). Therefore, interpreting comes naturally after collecting customer data through any of the approaches discussed before and plays a crucial role in generating valuable customer insights for innovation.

We identified two key literature streams on interpretation. The first literature stream focuses on the mental processes behind interpreting. According to this literature, interpreting requires cognitive effort to transform data into shared understandings that form the basis of valuable customer insights (Stigliani & Ravasi, 2012). In innovation, this involves breaking down customer needs into discrete 'jobs' that customers want to get done and understanding the social and individual meaning of an innovation to customers (Bettencourt & Ulwick, 2008).

The second literature stream examines the *impact* of interpretation on the quality of customer insights. This stream

shows that careful interpretation enables firms to uncover hidden patterns and relationships within customer data, leading to higher-quality customer insights (Kalaignanam et al., 2021). Some studies document contingencies that influence the effectiveness of interpretation in influencing innovation outcomes. Such contingencies include organizational factors (e.g., firm size) and contextual factors (e.g., market and technological turbulence).

Organizing

Organizing is a firm's capacity to set up its teams and processes to improve the application of customer insights for innovation. While certain organizational aspects may be complex to change, many can be adjusted to improve how firms leverage customer insights in innovation. For example, Unilever's Consumer and Market Insights (CMI) group exemplifies an inter-functional structure that promotes agile collaboration, capability building around customer-centric insights, and organization-wide dissemination of customer insights (Van den Driest et al., 2016).

We identify three literature streams on organizing. The first stream examines team structuring, i.e., how firms can organize teams to effectively gather, process, transmit, and use customer insights (Moorman & Miner, 1998). For example, Van den Bosch et al. (1999) find that self-formed teams are better at generating and utilizing customer insights. Empowering employees, designing proper incentives, and optimizing communication channels also facilitate insight dissemination (Foss et al., 2011). Other authors have studied how ideators' network connectivity impacts idea quality (e.g., Stephen et al., 2016).

The second stream examines cross-functional collaboration between internal functions, such as innovation and marketing. This literature stream focuses on processes to stimulate cross-pollination (Carlile, 2002) and establishes that such cross-pollination leads to better customer insights, particularly in the fuzzy front-end (Verworn, 2009).

The third stream focuses on external partnering, i.e., how firms can facilitate connections between innovation teams and outside partners and communities (Reypens et al., 2021). For example, Dahlander and Piezunka (2014) show that firms should engage with external partners proactively (e.g., stimulate debate) or reactively (e.g., signal listening).

Deciding

Deciding is the conscientious and deliberate use of current best evidence in making innovation decisions. This definition is akin to evidence-based medicine, which inspired the evidence-based management movement in the mid-2000s (Pfeffer & Sutton, 2006). To make such decisions, firms must be able to harness and integrate multiple sources of customer data (Webb et al., 2011).

Our review of the literature on deciding suggests several literature streams that contribute to our understanding of how to use customer insights to innovate. The first stream establishes the benefits of using customer data to drive innovation decisions. Dahl (2016) shows that the deliberate use of customer data significantly improves the quality of innovation decisions. However, it is essential to strike a balance, as excessive reliance on current or historical customer data can lead firms to anchor too much on their current customers, hindering innovativeness (Christensen & Bower, 1996).

A second literature stream highlights the value of ongoing customer insights, i.e., combining data from multiple sources to enhance innovation and marketing decisions (e.g., Rangaswamy & Lilien, 1997). Continuous integration of customer data improves collaboration across teams and departments, decision quality, and firms' time to market (Webb et al., 2011).

A third stream explores integrating intuition and data to improve innovation decisions. For example, Henard and Szymanski (2001) show that integrating intuition and evidence helps resolve disagreements among managers that can hamper decision quality. Dayan and Di Benedetto (2011) show that integrating intuition and evidence is an effective way to leverage the expertise of experienced managers for better decision outcomes.

Tracking

Tracking refers to the systematic monitoring of relevant data and metrics to learn about the impact of insights-driven decisions on the performance of innovations. In this domain, we identified three relevant literature streams for customer insights for innovation. The first literature stream focuses on tracking the effects of using customer insights on innovation and firm performance. For example, Grinstein (2008) shows that firms that generate and disseminate customer insights outperform their competitors regarding innovativeness and new product performance.

A second literature stream focuses on prescribing metrics for firms to gauge customer responses to innovation. For example, Mintz and Currim (2013) propose three financial metrics: expected margin (%), cannibalization level, and internal rate of return. They also emphasize tracking marketing-related outcomes, including customers' attitudes towards the new product/brand, and expected annual growth rate. Other authors (e.g., Maurya, 2022) suggest that firms should track innovation success using metrics for customer acquisition (e.g., awareness and trial rate), activation (e.g., adoption rate, conversion rate, time-to-peak-sales), revenue (e.g., average price paid, margin), retention (e.g., customer satisfaction, repeat purchase rate), and referral (e.g., excitement with the innovation, net promoter score).

A third stream of literature documents contingency factors that may influence innovation performance and, thus,

should also be tracked. For example, authors argue that firms that proactively monitor customer needs deliver more customer value (Blocker et al., 2011) and have higher innovation performance (Narver et al., 2004). Ittner and Larcker (1997) show that, all else equal, firms that rely on cross-functional innovation teams and use advanced design tools have faster new product development cycles. De Luca and Atuahene-Gima (2007) show that a firm's domain expertise and extent of cross-functional collaboration are critical drivers of innovation performance.

Qualitative study among market research agencies

We have synthesized the literature across ten domains. Grounded on this synthesis, we now dive into our qualitative study among market research agencies. We interviewed 12 executives at 11 of the world's largest market research agencies as key informants (Step 4 in our methodology). In these interviews, we first confirmed that all interviewees would rate themselves as six or higher on a 10-point scale of knowledge of customer insights for innovation to ensure key informant reliability (Homburg et al., 2012). We then asked about their and their clients' views and experiences with different domains. We stopped interviewing key informants when we sensed that themes started to repeat themselves. After completing all interviews, we conducted a qualitative content analysis yielding several findings that helped us (1) qualify the managerial importance of customer insights for innovation and (2) identify managerially relevant themes across domains. The interviews also confirmed the face validity of our ten domains and customer insights process.[8]

Our interviews yielded four significant findings: (1) *observing* is essential in innovation but challenging due to intrusiveness and privacy concerns, (2) *testing* accelerates innovation when done in an agile manner, (3) firms need to better *organize* for insight application, and (4) customer insights are pivotal yet underutilized by firms in innovation *decisions*, particularly in smaller firms and industries such as healthcare.

First, our interviewees consider *observing* essential in innovation but challenging for two reasons. Observing can be challenging because it is not always easy to observe without intruding. By its very nature, observation may lead to subtle intrusion or "observer effects", leading subjects to behave differently than they typically would. Specifically, "Hawthorne effects" (i.e., subjects altering their behavior because they know they are being observed) or "Rosenthal effects" (i.e., unintentional cues emitted by the observer that bias the subjects' behavior) can reduce the validity of observed customer behaviors (Grove & Fisk, 1992), as illustrated by the following quote:

> *"As soon as customers understand that you are observing them, it's not natural anymore (...) researchers must already be very close friends before customers show them the way they [truly] are."* [Managing Director of a generalist market research agency]

Another challenge with observing is setting clear legal and ethical boundaries around customer privacy. For example, many companies are exploring innovative technologies for non-intrusive observation. For example, firms may use GPS trackers and customers' mobile phones to observe their behavior. But the challenges of doing so are not trivial, as one of our interviewees expressed through the following anecdote:

> "*[We wanted to] recruit people and put a GPS tracker in their car so that we could monitor their travel driving behavior and its impact on the tires of their car without asking them questions all the time (…) however, the GDPR [General Data Protection Regulation] does not always make it easy to follow customers in their natural habitat, and many customers are concerned about their privacy.*" [VP of Sales at a specialist market research agency]

Second, our interviewees see *testing* as an invaluable source of customer insights for innovation. Specifically, interviewees expressed that testing is essential to reduce time-to-market. Yet, the precise approach to testing needs careful adaptation to ensure such acceleration. Several interviewees mentioned, for example, the importance of adopting an agile mindset (e.g., using sequential test-adapt-test methods and adopting faster and earlier testing) to improve the impact of testing on innovation performance. Yet, this is not a trivial change for companies. Thus, interviewees mentioned that many companies are still reluctant to test new ideas due to a fear of costly failure, as highlighted by the following two quotes:

> *"Make testing more scalable and realistic as well … So, if you make it more scalable to experiment, then you can nurture more ideas, and in the longer run, there is more chance that you will develop the 'best' idea … This is probably where technology can help."* [Global Solutions Leader of a generalist market research agency]
>
> *"I do think that companies are still afraid of failing, so companies sometimes don't like to test things"* [Associate Director of a specialist market research company]

[8] All interviewees agreed that the ten domains provide a comprehensive overview of customer insights for innovation. They also confirmed that the customer insights process accurately describes the activities firms use to generate, disseminate, and apply customer insights for innovation.

Third, interviewees said that *organizing* is an area where firms could do much better, particularly in how they form teams to generate, disseminate, and apply customer insights for innovation. While the interviewees recognize that firms have made progress in this area, they admit there is still much work to be done. All interviewees unanimously agreed that the biggest challenge is effectively integrating all the data accumulated within a company and analyzing it properly to ensure meaningful insights for innovation decisions. Addressing this challenge holds the key to unlocking untapped potential, as the following quote illustrates:

> *"Bringing all [information] together and synthesizing this information to something useful; this is the big struggle. (…) I have not seen one working information system like a library or a knowledge site at a company that really worked well. And every single company says, 'only if we would know what we know.'"* [Senior Director of Innovations at a European-based specialist market research agency]

Fourth, interviewees highlighted that *deciding* based on a conscientious and deliberate use of best customer evidence is critical but remains a struggle for many firms. On the one hand, all market research executives we interviewed emphasized that customer insights are critical and must be used across all stages of the innovation cycle, not only in the pre-launch phase, as the following quote illustrates:

> *"Involving or understanding customers early in the innovation cycle is not only advisable but also fundamental for successful innovation and sustained growth."* [VP of sales in a specialized market research agency]

On the other hand, they mentioned that insights are not always taken seriously. Specifically, most of our interviewees expressed a feeling that, at present, companies underutilize customer insights to support their innovation decisions. A challenge raised by several interviewees is that even companies that claim to be customer-centric often do not "walk the talk" and remain product-centric in their innovation efforts. The following two quotes are examples of this sentiment:

> *"Many companies are too R&D focused. They start with the product. Then, they first do prototypes, and only later see if there is a customer."* [Data and Insights Leader at a generalist market research agency]
>
> *"Most companies are not enough customer-focused. I would say that this is still a path that we need to go through. I do not think we are there yet. There are not a lot of companies that are truly customer-focused."* [Associate Director at a specialist market research agency]

Several interviewees pointed out that specific company archetypes are more prone than others to systematically underuse customer insights for innovation. For instance, many smaller companies (e.g., startups and SMEs) rely excessively on intuition to make innovation decisions, as the following quote illustrates:

> *"What still surprises me a lot is that there are many companies out there who don't use insights at all. They seem to just innovate based on their gut feeling about a prototype. Especially companies in the small and mid-size segments."* [VP sales of a specialized market research company]

Other interviewees mentioned that companies in sectors such as healthcare still have a product-centric mindset and thus tend to push their products and technology rather than attempting to understand customers, as in the following quote:

> *"[In healthcare,] many firms feel that gathering customer insights for innovation takes too much time. They feel they already have all the knowledge they need… and people don't like investing effort into things they already know…"* [Associate director of a specialized market research agency]

Overall, evidence from our interviews supports the importance of customer insights in innovation. The findings of these qualitative interviews also demonstrate that there are four key domains where we need a better understanding of the role of customer insights for innovation: observing, testing, organizing, and deciding.

Quantitative survey study with managers

In this section, we provide empirical evidence from a survey of managers involved in innovation decisions. We use this evidence to quantify, for each domain, (1) the perceived underuse or overuse of customer insights for innovation, and (2) the perceived alignment or misalignment between the use and impact of different domains of customer insights for innovation.

Data collection

We ran an online survey among managers knowledgeable about the innovation activities conducted within their companies (i.e., if they scored six or higher on a 10-point knowledge of innovation scale). We recruited 918 managers using Dynata's executive panel. We excluded 248 respondents who scored below six out of ten on a "knowledge of innovation at their companies" question (see Stremersch et al. (2022) for a similar approach) and 365 others who were inattentive (Meade & Craig, 2012) or did not pass sampling and quality checks. Our final sample comprises 305 managers working

on marketing, strategy, innovation, and customer/user experience. We present further details on respondent selection and questionnaire structure in Web Appendices D and E.

Perceived underuse or overuse of customer insights

We first asked managers to rate how much their firms *currently use* and *should use (as compared to the present)* the different domains of customer insights for innovation (as defined in Table 1) using 5-point scales.[9] Managers' answers to these questions yielded two significant findings: (1) firms underuse customer insights for innovation (a finding that confirms the results of our qualitative interviews), and (2) firms especially underuse domains that require active customer involvement (i.e., crowdsourcing, co-creating) and deliberate insight-gathering efforts (i.e., observing, intruding, testing, and imagining).

First, we find that firms significantly underuse several domains of customer insights for innovation. Figure 4 shows the sum of the average responses, across all domains, to the 'current use' and 'should use' questions. In line with our qualitative interviews, managers reported that their companies should use customer insights for innovation more than they currently use them (Δ = 'should use'—'current use' = 2.4; $p < 0.01$). To further quantify whether managers believe their companies should increase the use of customer insights for innovation as compared to the present, we tested whether the sum of average responses across domains for the "should use" questions is larger than 30 (ten domains × three, which is the score associated with the option "about the same as present"). The results confirm that managers believe their companies should use more customer insights for innovation in the future than what they currently do (i.e., 35.3 vs. 30; $p < 0.01$).

Second, we find important differences in managers' stated underuse of customer insights for innovation across domains. Figure 5 shows the average difference between the 'should use' and the 'current use' across domains, ordered from domains with the largest reported underuse ($\Delta_{\text{CROWDSOURCING}} = 0.74$; $\Delta_{\text{CO-CREATING}} = 0.46$; $\Delta_{\text{INTRUDING}} = 0.37$; $\Delta_{\text{OBSERVING}} = 0.30$; $\Delta_{\text{TESTING}} = 0.25$; $\Delta_{\text{IMAGINING}} = 0.24$; $p < 0.01$ for all six domains) to the domains with no significantly reported underuse ($\Delta_{\text{INTERPRETING}} = 0.03$; $\Delta_{\text{DECIDING}} = 0.02$; $\Delta_{\text{TRACKING}} = 0.01$; $\Delta_{\text{ORGANIZING}} = -0.01$; $p > 0.10$ for all four domains). Thus, domains that require active customer involvement (i.e., crowdsourcing, co-creating) or deliberate insights-gathering efforts (i.e., observing, intruding, testing, and imagining) are significantly underused by firms.

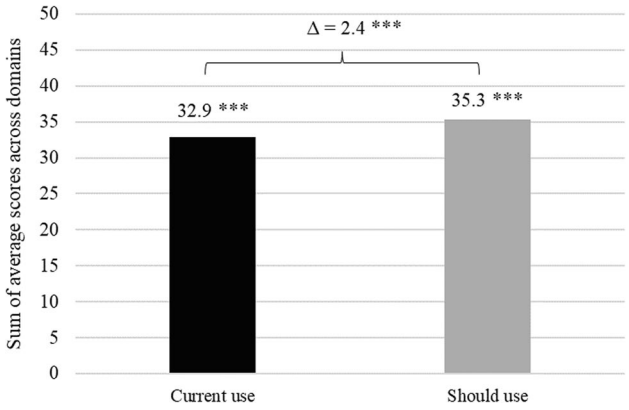

Fig. 4 Managers report they underuse customer insights for innovation (N = 305). Note. The asterisks for the numbers on top of each bar represent the p-values for t-tests comparing the sum of mean scores (across respondents) across all ten domains of customer insights for innovation to 30 (ten domains × three, which for the 'should use' question is the score associated with the option "about the same as present"). We also run a t-test to assess whether the difference between 'should use' and 'current use' (i.e., the Δ) is different from zero: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$; n.s. = non-significant. All t-tests are two-tailed

Perceived alignment or misalignment between use and impact of customer insights

Next, we investigate the perceived alignment or misalignment between firms' self-reported use of different domains and their impact on innovation performance. First, to measure innovation performance, in the survey, we asked the managers to evaluate their firm's innovation performance compared to their main competitors using a five-point scale.[10] Then, to assess the impact of each domain on innovation performance, we estimated a regression linking innovation performance and managers' stated use of the different domains (we report full regression results in Web Appendix F). We then correlated managers' self-reported use of each domain with the impact of such domains on innovation performance, measured by their coefficient in the regression mentioned above. We find that managers' self-reported use of different domains is uncorrelated with the impact of each domain on innovation performance (r = -0.098; $p > 0.1$). Notably, managers are underusing crowdsourcing,

[9] The response scale for the 'current use' question was 1 = never, 2 = rarely, 3 = sometimes, 4 = often, and 5 = very often. The response scale for the 'should use' question was 1 = 'much less than at present', 2 = 'less than at present', 3 = 'about the same as at present', 4 = 'more than at present' and 5 = 'much more than at present' (see Web Appendix E).

[10] The question was "Compared to your main competitors, how would you evaluate your firm's innovation performance?" and the response scale was 1 = much worse than our competitors, 2 = worse than our competitors, 3 = about the same as our competitors, 4 = better than our competitors, 5 = much better than our competitors.

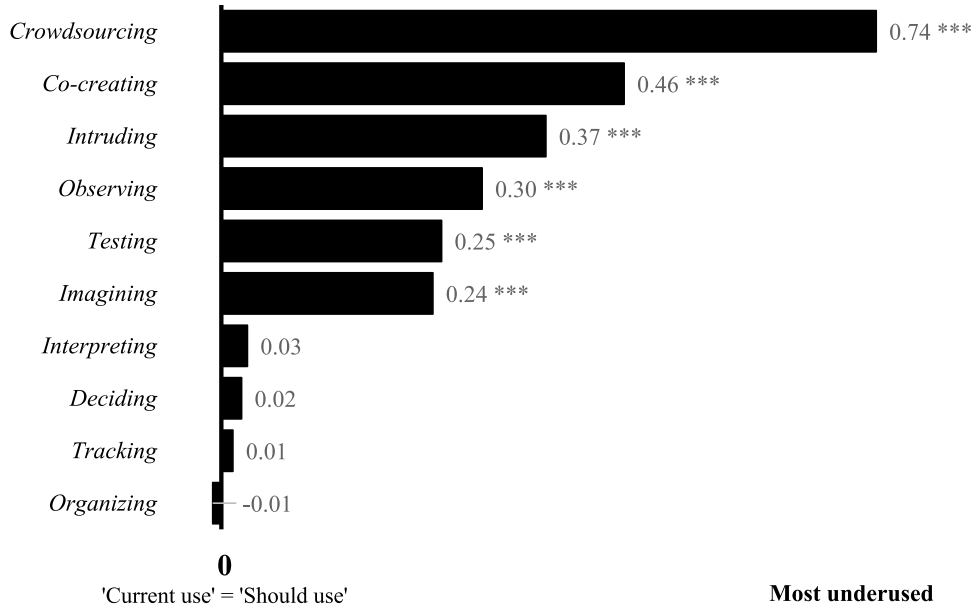

Fig. 5 Customer insights domains sorted by degree of underuse (N = 305). Note. The asterisks represent the p-values for t-tests comparing the difference in the mean scores between 'should use' and 'current use' (i.e., the Δ) for each domain of customer insights for innovation to zero (which means that managers perceive the 'current use' as equal to the normative 'should use'): *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$; n.s. = non-significant. All t-tests are two-tailed

imagining, intruding, and co-creating (see Fig. 5) despite their positive impact on innovation performance (see Fig. 6).

In short, the managers we surveyed acknowledge the underuse of customer insights in innovation, particularly in domains that require active customer involvement and deliberate insight-gathering efforts (i.e., crowdsourcing, imagining, intruding, and co-creating), regardless of the correlation of these domains with innovation performance.

Conclusion

We now summarize our findings and implications for business scholars and firms. Then, we propose an agenda for future scholarly research and discuss the study's limitations.

Implications for business scholars

The literature on customer insights for innovation, both in marketing and other business disciplines, is fragmented. This prevents firms and scholars from fully leveraging the potential of customer insights for innovation. To tackle these limitations, this article synthesizes the field of customer insights for innovation with two critical contributions for business scholars.

First, the article offers a unifying definition of customer insights for innovation. This definition should help foster interdisciplinary scholarship in this area. To help spur academic research in this area, the article also offers a clear overview of the process firms use to generate, disseminate, and apply customer insights for innovation.

Second, this article synthesizes existing knowledge in ten domains of customer insights for innovation. Together with our interviews with customer insights intermediaries and surveys with managers, this synthesis helped us identify potential knowledge deficiencies and future research directions. Below, we propose a research agenda leveraging the deficiencies and emerging topics we identified through our literature review, interviews, and survey.

Implications for firms

Our literature synthesis, interviews, and survey highlight crucial areas for improvement in firms' use of customer insights for innovation. First, even although research shows that firms that use customer insights achieve higher innovation performance (e.g., Grinstein, 2008), our research suggests that firms tend to underuse customer insights for innovation, particularly in crowdsourcing, imagining, intruding, and co-creating domains. Our interviews with customer insights intermediaries and survey with managers support this conclusion.

Second, we emphasize the value of actively involving customers in generating customer insights for innovation, especially through crowdsourcing (e.g., Afuah & Tucci, 2012; Bayus, 2013) or co-creation (Von Hippel, 1978). Firms may, for instance, consider upskilling innovation and marketing decision-makers on how they can leverage crowdsourcing to generate customer insights for innovation. Customer insights intermediaries may also consider offering advisory services to guide their clients toward effectively using crowdsourcing and co-creation methods to generate high-quality customer insights for innovation.

Third, firms may consider promoting a more active collaboration between innovation and marketing teams. For example, both our interviewees and surveyed managers

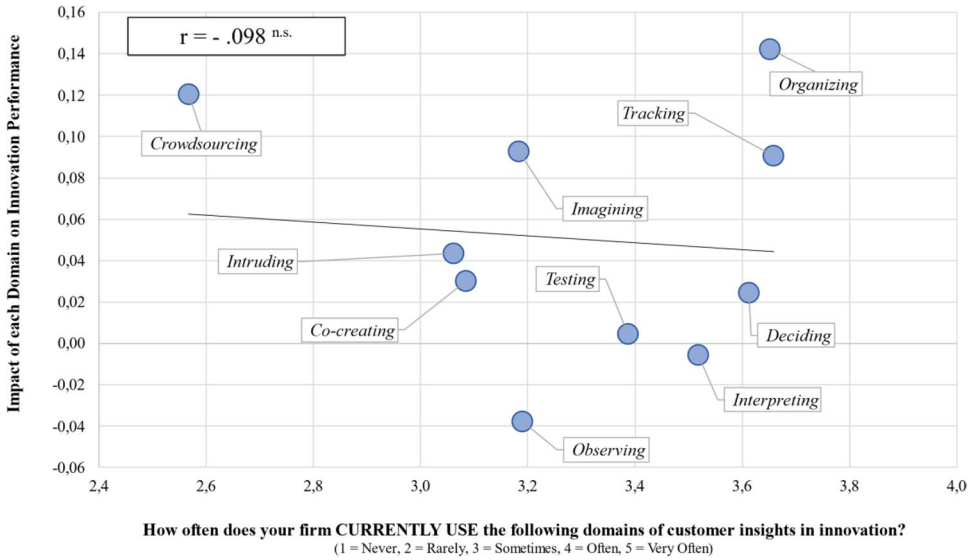

Fig. 6 Impact versus current use of customer insights domains (N = 305). Note. r represents the correlation between the 'current use' and the regression coefficients measuring the impact of different domains of 'customer insights for innovation' on 'innovation performance' (n.s. = non-significant)

indicated that firms need to embrace testing and tracking of innovations and should do so earlier and faster. Early and frequent involvement of marketers in innovation initiatives may help firms emphasize early and proactive testing and tracking across innovation stages.

Future research agenda

Our research uncovered three emergent themes beyond the ten domains of customer insights for innovation we covered in our paper. We now explore these themes and offer a roadmap for future research on customer insights for innovation (see Table 2).

Artificial intelligence and customer insights for innovation

The first theme we identify for future research is the role of *artificial intelligence (AI) and generative artificial intelligence (GenAI) in customer insights for innovation.* AI encompasses programs, algorithms, systems, and machines that exhibit aspects of human intelligence and can mimic intelligent human behavior (Davenport et al., 2020). The impact of AI on the generation, dissemination, and application of customer insights for innovation is profound and multifaceted (Verganti et al., 2020). Yet, we need more research to fully understand its potential impact, including which algorithms can best help firms explore trends in customer data, understand the competitive landscape, or validate innovations' market potential (see Table 2 for selected examples of open research questions in this area).

Generative artificial intelligence (GenAI), which includes algorithms capable of creating new textual or visual content from patterns and inputs learned from large datasets, is also advancing rapidly in innovation contexts (e.g., Burnap et al., 2023). Our interviewees stressed that firms need to pay special attention to GenAI and how to use it to generate, disseminate, and apply customer insights in innovation.

First, GenAI can offer firms more efficient approaches to generating customer insights for innovation. This can be accomplished through "synthetic market research," i.e., using GenAI to simulate customers and analyze their responses to innovations. Recent studies suggest that synthetic market research may accurately emulate customers' survey responses (Brand et al., 2023) and experimental stimuli (Horton, 2023). Yet, we need more empirical research to establish synthetic market research's validity and boundary conditions (e.g., Atari et al., 2023). This may include survey-based research, as well as experimental or quasi-experimental studies.

Second, GenAI can aid firms in better disseminating customer insights for innovation. Future studies in this area can attempt to unravel how GenAI can expand firms' capacity to recognize and visualize patterns in customer data. For example, large language models can filter vast amounts of textual data (think of verbatims from customer interviews or focus groups) and spot patterns or leverage other sources of information to extract patterns and preliminary conclusions. Researchers can validate approaches and methodologies to help firms leverage GenAI algorithms to generate relevant analyses and insights and visualize them persuasively.

Third, GenAI can help firms apply customer insights to make better innovation decisions. Future research in this area must ensure that GenAI helps "debias" human decisions. For example, future research could test how GenAI tools can help firms optimize how they structure and organize insights to maximize the quality and speed of innovation decisions (e.g., automating the creation of relevant dashboards and

Table 2 Roadmap for future research on customer insights for innovation

Future research themes	Selected future research questions	Source of inspiration per theme
Theme 1: AI and Customer Insights for Innovation	■ Can unsupervised learning algorithms (AI) effectively uncover trends and innovation opportunities in customer data? ■ How accurate are NLP algorithms (AI) in conducting competitive analysis for innovations by processing publicly available competitor information? ■ How accurate are machine learning models (AI) in validating innovation potential? ■ How valid is synthetic market research for innovation (GenAI), and what are its limits? ■ How can GenAI aid firms in recognizing and visualizing customer needs and identifying patterns in customer data? ■ How can GenAI tools help firms organize insights and improve innovation decisions? ■ How should we deal with fake information generated by GenAI algorithms?	■ Literature review and synthesis (beyond the 10 domains in Fig. 3) ■ Qualitative study among market research agencies (i.e., Step 4 in our methodology)
Theme 2: Contingency Perspectives on Customer Insights for Innovation	■ How do firm size and industry sector impact the use of customer insights for innovation? ■ How should different firms use customer insights to maximize innovation performance? ■ Which methodologies should firms use to generate customer insights for distinct types of innovation (e.g., radical versus incremental)? ■ Should firms adopt fundamentally different approaches to generating, disseminating, and applying customer insights for distinct types of innovation? ■ How should firms best leverage methods such as intruding, observing, and testing at various stages of innovation?	■ Literature synthesis (i.e., Step 3 in our methodology) ■ Qualitative study among market research agencies (i.e., Step 4 in our methodology) ■ Quantitative survey with managers (i.e., Step 5 in our methodology)
Theme 3: Excellence in Customer Insights for Innovation	■ How can managers' and employees' competencies be upskilled in the different steps of the customer insights process for innovation? ■ How can employees be upskilled in advanced analytics such as digital scraping, text, and image mining to gather valuable customer insights? ■ What is the optimal resource allocation across the identified domains to maximize innovation performance? ■ What competencies will marketers and innovators need to excel in the generation, dissemination, and application of customer insights for innovation in the future?	■ Mostly from the qualitative study among market research agencies (i.e., Step 4 in our methodology)

prioritizing the right information to help firms make innovation decisions at various stages of the innovation funnel). Additionally, GenAI tools can help managers run what-if analyses and simulate scenarios based on customer data, further improving decision quality.

Here, it is important to make a note of caution. Future research can also examine whether GenAI algorithms may introduce new "biases" of their own and, in such cases, how to mitigate those threats. For example, GenAI algorithms have a well-documented tendency to 'hallucinate' and fabricate facts (Brand et al., 2023). While future algorithmic advances may reduce this problem, we need further research to quantify the frequency and impact of such hallucinations. There is also evidence that GenAI can better simulate Western, Educated, Industrialized, Rich, and Democratic (WEIRD) populations than other populations (Atari et al., 2023).

Contingency perspectives on customer insights for innovation

The second theme we identify for future research is *contingency perspectives on customer insights for innovation.* Specifically, important differences may exist in the use and impact of customer insights for innovation across industries, firms, and types of innovation. For example, our interviewees suggested that smaller companies and companies operating in healthcare are especially prone to underuse customer insights. Future research could examine the impact of firm size and industry sector on the use of customer insights for innovation.

Our interviewees also questioned whether different approaches to customer insights are needed for distinct types of innovation or at various stages of the innovation cycle. Therefore, future research should explore optimal methodologies for distinct types of innovation (e.g., incremental vs. radical; new to the firm vs. new to the world) and how firms can tailor their customer insights strategies across innovation stages, as outlined in Table 2.

Another topic that emerged from our interviews and literature review is the importance of a firm's "customer insights maturity" in its ability to best generate, disseminate, and apply customer insights in its innovation decisions. While we explored how the degree of use of different domains of customer insights for innovation relates to firms' innovation performance, future research could examine *how* different firms should use customer insights for optimal results. For example, companies with lower readiness to use "complex" market research method may require simpler tools to stimulate the use of customer insights, such as mobile diaries (Lovett & Peres, 2018) or easy-to-use real-time trackers (Hui et al., 2014). Future research can more systematically explore which types of tools, templates, and methods should different firms use to maximize the benefits they extract from customer insights for innovation.

Excellence in customer insights for innovation

The third theme we identify for future research is *excellence in customer insights for innovation*. Because the field of customer insights for innovation evolves quickly, research in this area can become rapidly outdated. Hence, future research could also focus on helping firms sustain their managers' competencies, as well as their ability and willingness to continuously leverage customer insights for innovation. Our interviewees and survey respondents suggested several gaps in innovation teams' knowledge, skills, and attitudes regarding customer insights for innovation. Specifically, they mentioned upskilling needs in the areas of tracking, co-creating, and testing. Future research should thus help firms learn how to best develop managers' competencies in customer insights for innovation.

Other areas where, according to our interviewees, marketers and innovators may need upskilling on the use of advanced analytics for unobtrusive customer observation, such as using digital scraping and text mining to gather valuable customer insights (Timoshenko & Hauser, 2019). Researchers can also examine how best to upskill managers to leverage technologies such as augmented reality (AR) and virtual reality (VR) to obtain valuable customer input to pretest their innovations (Burke, 1996).

Our interviews also show that while firms value customer insights for innovation, many don't invest enough resources in them. Our survey indicates underuse in domains like crowdsourcing, observing, intruding, and testing despite their correlation with innovation performance. More generally, we lack rigorous empirical research on optimal resource allocation across different approaches to the generation, dissemination, and application of customer insights for innovation. Future research in this area is thus valuable.

Limitations

It is important to acknowledge some limitations of our study. While we conducted a comprehensive review of the marketing, innovation, strategy, and entrepreneurship literature, the selection of articles–as in any literature review–has an element of subjectivity, which may introduce biases. Additionally, our qualitative interviews and quantitative survey relied on convenience samples, limiting the generalizability of our findings. Furthermore, we did not fully explore the heterogeneity across firms, industry sectors, and types of innovation, which could significantly impact the relationship between customer insights and innovation outcomes. We believe these are all opportunities to continue expanding much-needed research in customer insights for innovation.

In addition, sometimes firms innovate by simply leveraging competitive observations as inspiration, which does not fit neatly into the ten domains we identified. Future research could build upon our framework and expand it to include other domains of customer insights for innovation that may significantly drive innovation for companies. The growth of GenAI as a new area of research in customer insights for innovation may also lead to a new domain on its own or permeate all other domains.

To advance the field, future studies can address these limitations by incorporating more diverse samples and data sources, exploring heterogeneity across different dimensions, and expanding our framework and synthesis to include additional types of customer insights relevant to innovation. By doing so, we can further enhance our understanding of the role of customer insights and their impact on innovation outcomes.

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Declarations

Conflict of interest The authors have no conflict of interest to declare.

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