

## RESEARCH ARTICLE

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# Employee acceptance of disruptive service innovations at the frontline: The role of collective sensemaking processes

Christopher Garrelfs  | Carsten Schultz  | Marie Luengen 

Kiel Institute for Responsible Innovation, Kiel University, Kiel, Germany

## Correspondence

Carsten Schultz, Kiel Institute for Responsible Innovation, Kiel University, Westring 425, 24118 Kiel, Germany.  
Email: [schultz@bwl.uni-kiel.de](mailto:schultz@bwl.uni-kiel.de)

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Acceptance of service innovation by frontline employees is a challenging issue, especially if such innovations have the potential to disrupt existing value creation models and individual competencies. Disruptive service innovations are often (1) characterized by a high degree of innovativeness related to significant changes in technology and in the market and (2) may be introduced by technology manufacturers as new service market entrants that cause a competitive threat to the existing service provision. We argue that such innovations challenge frontline employees' focus on routines and standardized service operating procedures. The perceived threat and resulting high levels of uncertainty may inhibit innovation acceptance. Our study follows a collective sensemaking perspective, paying special attention to investigating the moderating role of (1) the exchange of operational information within a workgroup and (2) a firm's entrepreneurial orientation. Whereas the former may increase frontline employees' preference for incremental improvements, the latter may help to increase the acceptance level of potentially more disruptive innovations. We test our theoretically derived hypotheses with an experimental vignette study of 671 frontline employees in the field of audiology, a health care market particularly affected by both more radical and market entrant innovations. Results show that a high degree of innovativeness has a negative effect on innovation acceptance. Frontline employees accept radical innovations less readily than incremental innovations. A competitive threat from new technology manufacturers in the supply chain does not lead to a lower innovation acceptance level. The moderation results indicate significant effects of both information exchange and entrepreneurial orientation. Intensive information exchange within the workgroup strengthens the negative relationship between the degree of innovativeness and innovation acceptance. In contrast, a high degree of entrepreneurial orientation weakens the negative relationship between a competitive threat and innovation acceptance.

## KEYWORDS

collective sensemaking, competitive threat, disruptive service innovation, frontline employees, health care, innovation acceptance, market entrant innovation

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## 1 | INTRODUCTION

Service landscapes are in transition (M.-H. Huang & Rust, 2018; Lusch & Nambisan, 2015). The role of service frontline employees is affected by fundamental changes to the way in which services are delivered (M.-H. Huang & Rust, 2018). These changes result from, inter alia, the digitization of service work (Schneider & Kokshagina, 2021), the utilization of service robots (Kipnis et al., 2022) or the increasing provision of remote services by technology manufacturers (Tronvoll et al., 2020; Vendrell-Herrero et al., 2017). Although some digital developments opened up opportunities to alleviate the repetitive work that many frontline employees have to do, digital service innovation may shift those workers' competencies to technical systems or new market entrants, which may lead to perceptions of job insecurity (Paluch et al., 2021; Wirtz et al., 2018). This disruptive potential is mainly caused by (1) a high degree of innovativeness (radical innovations) and (2) a *competitive threat* resulting from technology manufacturers who were originally product oriented in the supply chain but now enter the service market. For instance, the use of radical technologies, like artificial intelligence and big data analyses, in health care can improve the quality and efficiency of the medical process, support health care professionals in administrative or exhausting tasks or allow for completely new health care services, like health chatbots (M.-H. Huang & Rust, 2018, 2021; Nadarzynski et al., 2019). Yet, disruptive service innovations will also alter the distribution of competencies within the clinical decision-making process (De Keyser et al., 2019; Perner, 2021), reduce the need for human intervention (Rampersad, 2020) and increasingly originate from actors outside the established service landscape (Tronvoll et al., 2020; Vendrell-Herrero et al., 2017). Both trends may dramatically change existing service structures, processes, relationships and value creation models, and this can cause fundamental uncertainty about their future role in frontline employees (Larivière et al., 2017; Perner, 2021; Rampersad, 2020).

Frontline employees interact at the interface between end users and service producers and are therefore important for the co-creation of service value (Engen et al., 2021; Engen & Magnusson, 2018; Pham et al., 2022). They are in a key position to increase the quality and diffusion of services by advising and supporting end users (Melton & Hartline, 2010; Olsson et al., 2013). Hence, their acceptance of service innovation is key to the success of its implementation (Cadwallader et al., 2010). Innovation acceptance reflects an employee's own attitude to such service innovation and as their perception of the attitude to and expected support of the innovation by relevant groups and institutions (Fishbein & Ajzen, 1975). Nevertheless, frontline employees may rather focus on deeply ingrained, learned behaviours and routines to ensure consistent service quality and operational stability (Melton & Hartline, 2010; Stock et al., 2016). This can result in a tendency to prefer incremental improvements and may hamper the acceptance of more radical innovations that may cause perceptions of job insecurity within their ranks (van Hootegem et al., 2019).

Frontline employees frequently work in teams. Intensive exchange of information about best practices within such a workgroup can result in strong cohesion within the group and can drive employees' fixed intention to follow established routines (Janis, 1972; Staw et al., 1981; Weick & Roberts, 1993). Collective processes on the organization level may help to create a supportive environment for innovation (Heinze & Heinze, 2020) and may support more disruptive service innovations as a result (Perks et al., 2012). To the best of our knowledge, the existing literature on service innovation and frontline employees provides very limited insights into the influence of such collective processes. Hence, this study aims to answer the following research question: *How does the disruptive potential of service innovations, in terms of radical innovations and market entrant innovations, influence its acceptance by frontline employees; and how do collective processes on the workgroup and organization levels influence these relationships?*

We draw on the literature regarding the disruptive potential of service innovations and follow the theoretical perspective of collective sensemaking. Collective sensemaking describes an interpersonal process during which meaning is created within a social system (Morrison & Milliken, 2000; Weick, 1993; Weick et al., 2005; Weick & Roberts, 1993). Two contrasting collective processes can impact employees' *innovation acceptance* as a prerequisite for frontline employee's adoption of service innovation: (1) *information exchange* and (2) *entrepreneurial orientation*.

On the workgroup level, high-intensity *information exchange*, in the form of frequent sharing of information about current work processes, may reinforce a preference for established service processes, routines and procedures. High levels of group cohesion may result in group thinking (Janis, 1972), which in turn may undermine employees' receptiveness of service innovations with a higher disruptive potential (Staw et al., 1981; Weick & Roberts, 1993). Organizations with a more pronounced *entrepreneurial orientation*, on the other hand, may increase the innovativeness of their frontline employees by focusing communication on the benefits of innovations, proactively highlighting the relevance of future business models and providing a supportive environment for innovation (Agarwal & Selen, 2009; Kreiser et al., 2020).

We study innovation acceptance in the field of audiology (products and services related to hearing loss), a health care market particularly affected by both more radical and market entrant innovations. In recent years, this health care market saw significant progress in technologies, like artificial intelligence, and its application in audiology services, like the remote fitting of hearing aids (Garrelfs et al., 2021). Hearing aid technology manufacturers, who traditionally serve their end users through intermediary service organizations, now aim to offer 'over-the-counter' products without involving frontline employees. The field of audiology exemplifies the increasing tension between traditional service organizations and their current technology manufacturers who act as new service market entrants. Audiology services are usually provided by a workgroup operating in local stores that are part of larger organizations. This service market therefore provides a relevant empirical field for our

research question. However, our results are not specific to audiology and can be transferred to other contexts: for instance, cases where service robots start to take over tasks originally performed by human frontline employees (Kipnis et al., 2022), or other domains where technology manufacturers use remote services without the intervention of traditional service organizations (Tronvoll et al., 2020; Vendrell-Herrero et al., 2017).

To answer our research question, we conducted an experimental vignette study with a sample of 671 health care frontline employees working in audiology. We randomly assigned the frontline employees to four groups ( $2 \times 2$  factorial vignette design) to determine their acceptance of either radical/incremental or market entrant/peer-driven service innovations. Our study thus contributes on three fronts. First, we empirically analyse the effects of the disruptive potential of service innovations on frontline employee's acceptance levels by focusing on the *degree of innovativeness* and considering the impact of a *competitive threat* through market entrant innovations. Second, we develop a deeper understanding of these relationships by specifically focusing on the collective processes of *information exchange* within the workgroup and the *entrepreneurial orientation* of the overall organization. Third, from a methodological perspective, our experimental manipulation of the *degree of innovativeness* and the *competitive threat* within the actual empirical field increases the internal and external validity of our results and therefore yields valuable theoretical and practical implications.

## 2 | CONCEPTUAL FRAMEWORK

### 2.1 | The disruptive potential of service innovations

Service innovations may include new technological systems that result in an increasing potential for disruption of existing service markets in two major ways: *radical innovations* that are characterized by a high degree of innovativeness related to significant changes in technology and in the market (Schultz et al., 2013) and a *competitive threat* caused by technology manufacturers, who were originally product oriented in the supply chain but now enter the service market (Tronvoll et al., 2020; Vendrell-Herrero et al., 2017).

*Radical innovations* result from the opportunities offered by new technologies that fundamentally change the service market. They are defined as either creating completely new knowledge or recombining existing solutions with new knowledge (Hill & Rothaermel, 2003). As a result, radical innovations are 'disruptive in the sector [...] [and] create discontinuities within usual patterns of behavior and can challenge existing ways of doing business' (Perks et al., 2012). In contrast to more incremental innovations, they require new skills and competencies that lead to changes in the role of frontline employees within transformed service models (Cadwallader et al., 2010; Rampersad, 2020). Recent developments in data-driven solutions may lead to increased sidelining of frontline employees in service processes

(Frey & Osborne, 2017). Decision-making activities originally performed only by frontline employees are increasingly performed by entities utilizing advanced technologies, like machine learning, robotics and big data analyses (M.-H. Huang & Rust, 2018). Radical service innovations, in the form of remote services (Grubic, 2014), robotics (Willems et al., 2022) and self-services (Selnes & Hansen, 2001), enable service provision without the physical presence and intervention of frontline employees.

These technological advancements further break down market entry barriers and open value creation opportunities to various stakeholders. Product-centric technology manufacturers in the supply chain now enter the service landscape through *market entrant innovations*, resulting in a *competitive threat* to the traditional service organizations in the industry (Tronvoll et al., 2020; Vendrell-Herrero et al., 2017). These developments bring about increasingly connected system solutions that disrupt existing dyadic relationships between service organizations and end users and transform such relationships into an ecosystem of different actors (Luetjen et al., 2019). For instance, manufacturer-driven digital service platforms enable technology manufacturers to absorb service knowledge and process insights, continuously improve these innovations and finally increase their overall service performance level (Lusch & Nambisan, 2015). Consequently, service organizations' strategic dependence on technology manufacturers may be reinforced by the latter's long-term utilization of service competencies. Despite these complex tensions, existing research mainly focuses on the manufacturers' perspective regarding the development and implementation of service innovations (Tronvoll et al., 2020; Vendrell-Herrero et al., 2017). This shortcoming calls for a study of the acceptance level of service organization frontline employees.

### 2.2 | Employees' acceptance of service innovations

Although current research highlights the role of frontline employees as innovators through co-creating new service innovations (Artusi & Bellini, 2022; Engen et al., 2021), little is known about innovation acceptance by frontline employees (Cadwallader et al., 2010; Paluch et al., 2021; Schaarschmidt, 2016). Research on innovation acceptance in services rather focuses on the end user perspective and investigates those users' willingness to adopt more radical service innovations (M.-H. Huang & Rust, 2021; Wirtz et al., 2018). For instance, Paluch et al. (2021) investigate frontline employees' willingness to adopt service robots in the workplace and show how innovation acceptance is shaped by employees' evaluation of benefits (e.g., decreased workload) and risks (e.g., job insecurity). In another study, Sadangharn (2022) shows that frontline employees are willing to adopt service robots in the workplace, unless a resulting substitution challenges the employees' competencies and feelings of security about their future roles.

We investigate innovation acceptance as a prerequisite for frontline employees' actual use of service innovations. Various established models aim to explain the adoption of new technologies (Davis, 1989;

Fishbein & Ajzen, 1975; Venkatesh et al., 2003). Most of these models are grounded in the theory of reasoned action (TRA) proposed by Fishbein and Ajzen (1975). This theory predicts behavioural intentions, such as employees' willingness to adopt service innovations, based on individuals' attitudes and perceived social norms. The technology acceptance model (TAM) postulates that 'ease of use' and 'perceived usefulness' are determinants of technology adoption (Davis, 1989). The most prominent recent models are the TAM 2 (Venkatesh & Davis, 2000) and the unified theory of acceptance and use of technology (UTAUT; Venkatesh et al., 2003). Each of these models focuses on slightly different determinants, more detailed antecedents of technology adoption or specific contexts, like service robot acceptance models (Bröhl et al., 2019; Graaf et al., 2017). We thus propose that both individual perception of radical and market entrant innovations and the collective processes affect employees' attitudes to the service innovation and to the perceived support by relevant groups and stakeholders (social norms).

On the one hand, innovations can have positive consequences for frontline employees: They may, for example, increase job satisfaction by reducing time-consuming and repetitive service activities (Lacity & Willcocks, 2016). Smart technology also has the potential to assist and enhance human thinking and improve service quality and efficacy (De Keyser et al., 2019; Hilken et al., 2017). Frontline employees could realize that their roles shift from execution to support and coordination functions and then utilize their unique human capabilities to foster both innovation and long-term relations with end users (Bowen, 2016; Larivière et al., 2017). On the other hand, the rise of more radical and market entrant innovations is associated with increasing uncertainty about the future role of human resources in the service process (Hajiheydari et al., 2021; M.-H. Huang & Rust, 2018).

### 2.3 | The role of collective sensemaking

The acceptance of more disruptive service innovations can be seen as the result of employees' sensemaking. Through the process of sensemaking, frontline employees access and process information from their own and collective previous experiences (Gioia et al., 2002; Weick, 1995), and they classify this stream of experiences into meaningful units (Maitlis & Sonenshein, 2010; Weick, 1995). In the current context, sensemaking goes beyond the individual analysis. Collective sensemaking describes an interpersonal process where meaning is created within a social system (Morrison & Milliken, 2000; Weick, 1993; Weick et al., 2005). During this process, employees share their information and beliefs about innovations and their respective consequences (Mao et al., 2021). The social systems have developed over a long time, and the collective sensemaking evolves along old, familiar paths (Gioia et al., 2002; Wallin & Fuglsang, 2017). Frontline employees will therefore interpret new and complex information in light of the sensemaking process of the overall organization (Morrison & Milliken, 2000; Weick & Roberts, 1993).

On a workgroup level, frontline employees may update their perceptions based on the collective sensemaking of their workgroup (Maitlis & Sonenshein, 2010; Weick, 2010). Service organizations often engage in activities that focus on reliability and formalization to ensure consistent service quality (Jaakkola & Terho, 2021; Sriram et al., 2015; Voorhees et al., 2021). This is particularly true in the health care industry (Berry et al., 2022). Disruptive service innovations may therefore be in conflict with past schemas for action, challenging a more prospective sensemaking (Friesl et al., 2018; Konlechner et al., 2018) and directing the communication within the workgroup towards the negative consequences of the innovation (Janis, 1972). Frontline employees may align their own perceptions with these collective patterns of service provision in favour of promoting cohesion and stability within the workgroup. This may consequently reinforce employees' functional focus on current and past experiences (Weick & Roberts, 1993).

However, individuals are influenced not only by the collective sensemaking of their respective workgroup but also by the collective sensegiving of the overall organization. When efficiency and formalization dominate, frontline employees have limited room and little motivation to take risks, and they will experience uncertainty when exploring new innovations (Aspara et al., 2018; Berry et al., 2022). Organizations that support proactiveness and risk-taking (i.e., those having a higher entrepreneurial orientation) may shift employees' mindsets and attention towards the gains resulting from innovations rather than to a focus on potential losses (Covin et al., 2020; Covin & Lumpkin, 2011; Covin & Slevin, 1989). This may result in stronger, more focused innovation-related communication leading to a more positive connotation of innovation in the organization-wide communication. These collective sensemaking processes may then change employees' perceptions from a retrospective to a prospective focus (Friesl et al., 2018; Konlechner et al., 2018), which finally increases innovation acceptance.

## 3 | DEVELOPMENT OF HYPOTHESES

We suggest that the innovation acceptance by frontline employees is negatively affected by (1) a *higher degree of innovativeness* (radical innovation) and (2) a *competitive threat* caused by technology manufacturers in the supply chain entering the service market (market entrant innovation). In addition, we argue that the collective process of *frequent information exchange* on the workgroup level may strengthen these negative relationships, whereas a *higher entrepreneurial orientation* on the organization level will weaken these negative relationships. We present the underlying model in Figure 1. The hypotheses are developed and discussed below.

### 3.1 | Impact of the degree of innovativeness

Radical innovations in terms of significant changes in technology and in the market (Perks et al., 2012; Schultz et al., 2013) challenge

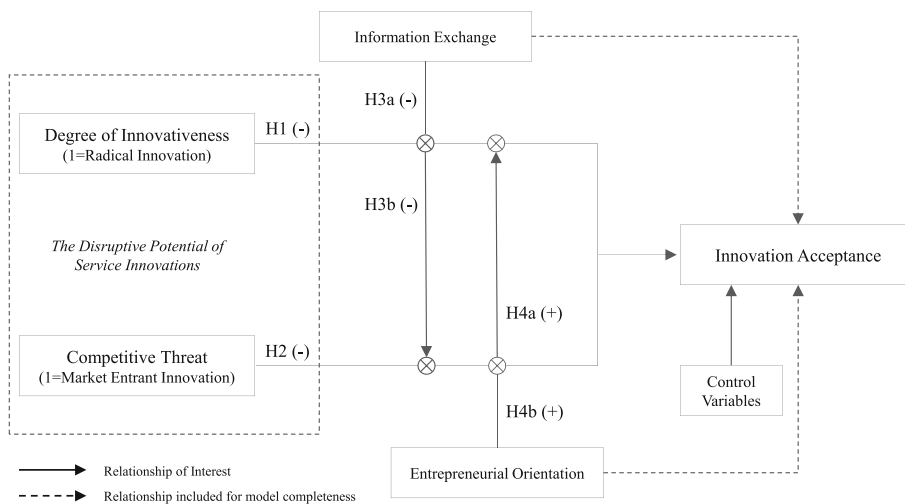


FIGURE 1 Overall research model.

frontline employees' mindsets that rather aim for operational stability and incremental improvements of current service processes (Aspara et al., 2018; Melton & Hartline, 2010; Stock et al., 2016). The associated disruptive potential can prevent frontline employees from objectively assessing the consequences of more radical innovations, leading to rigid behaviours and perceptions of job insecurity, even if the assumed negative consequences are unlikely to occur (Schneckenberg et al., 2017; Staw et al., 1981; van Hootegem et al., 2019). Frontline employee's cultural mindset can limit the acceptance of more radical innovations, especially in service industries that are characterized by highly regulated and normatively conservative environments, such as health care (Agarwal et al., 2010; Wallin & Fuglsang, 2017). Frontline employees may thus ignore the benefits of innovative alternatives and rather follow existing routines that rely on the common way of thinking but that simultaneously inhibit the acceptance of more radical innovations.

**Hypothesis 1.** The degree of innovativeness affects frontline employees in such a way that they accept radical innovations less readily than incremental innovations.

### 3.2 | Impact of a competitive threat through market entrant innovations

Technology manufacturers increasingly provide their own service offerings (Tronvoll et al., 2020; Vendrell-Herrero et al., 2017), bypassing existing service organizations and their acquired competencies. Therefore, technology manufacturers become a competitive threat to traditional service organizations. When confronted with innovations introduced by technology manufacturers as new service market entrants, service organizations and their frontline employees can fear the 'leakage of important own technological advances [...] and of disclosing own strengths and weaknesses' (Hussinger & Wastyn, 2016). Consequently, frontline employees may be opposed to building

on externally generated knowledge (Arias-Pérez et al., 2017). In contrast, employees may have a more positive attitude to accepting and using innovations that are developed or promoted by their own peer group, whether from their own firm, related service organizations or other entities with similar interests, because of heightened feelings of belonging and trust (Xiong et al., 2016). It can thus be expected that frontline employees would prefer innovations introduced by individuals and organizations with whom they share the same social identity, because this increases the employees' perceived psychological ownership that positively influences their acceptance of peer-driven innovations but negatively influences their perceived social attitudes to market entrant innovations (Baer & Brown, 2012; Piller & Antons, 2015).

**Hypothesis 2.** A competitive threat affects frontline employees in such a way that they accept market entrant innovations less readily than peer-driven innovations.

### 3.3 | Moderating impact of information exchange

Workgroup information exchange, in the form of direct communication and interaction, can shape a collective sense outcome that is 'generated in an ongoing iterative manner, as actors shape each other's meanings in repeated cycles of sensemaking' (Maitlis & Christianson, 2014). Frontline employees exchange information to optimize and align service provision to ensure a high quality of heterogeneous service processes. Collective sensemaking activities can lead to a homogeneous pool of information when employees share their information and beliefs, which then leads to a group consensus that finally exerts pressure towards uniformity and cohesion within the workgroup (Janis, 1972). This collective sensemaking reinforces employee's rigid mindset to preserve the status quo as well as their preference for incremental innovations that enhance operational stability (Weick & Roberts, 1993). We thus argue that

intensive information exchange is beneficial for peer-driven and radical innovations but limits the acceptance of radical and market entrant innovations.

**Hypothesis 3a.** Information exchange within the work-group strengthens the negative relationship between the degree of innovativeness and innovation acceptance.

**Hypothesis 3b.** Information exchange within the work-group strengthens the negative relationship between a competitive threat and innovation acceptance.

### 3.4 | Moderating impact of entrepreneurial orientation

Organizations can be more active in sensegiving that influences employees' acceptance of more radical and market entrant innovations, by nurturing an entrepreneurial spirit in an innovation-friendly environment (Covin & Slevin, 1989; Kreiser et al., 2020; Scott & Bruce, 1994). An entrepreneurial orientation describes an organization's innovativeness, proactiveness and risk-taking (Covin & Slevin, 1989), which in turn influence employees' perception of innovation. Entrepreneurial organizations thus create positive role models that promote the exploration of innovation opportunities, to move forward in times of uncertainty, to break past established routines and to accept and implement more disruptive service innovations (Chen et al., 2015; Covin & Slevin, 1989). Heinze and Heinze (2020), for instance, investigate the effect of organizational culture (innovativeness and cohesiveness) and social influence in health care and provide empirical evidence that an organization's innovativeness positively influences the adoption of changes by frontline employees. Therefore, an organization's entrepreneurial orientation offers a higher level approach to a more proactive and flexible mindset when confronted with both more radical and market entrant innovations.

**Hypothesis 4a.** Entrepreneurial orientation of the organization weakens the negative relationship between the degree of innovativeness and innovation acceptance.

**Hypothesis 4b.** Entrepreneurial orientation of the organization weakens the negative relationship between a competitive threat and innovation acceptance.

## 4 | RESEARCH METHOD

### 4.1 | Research context

To assess the derived hypotheses, we conducted an experimental vignette study in the field of audiology, that is, products and services related to hearing loss. Audiology frontline employees guide the end

user through the process of consulting to select and fit hearing aids. They also sell accessories and provide after-care. They work at the interface between end users and hearing aid technology manufacturers and play an intermediary role. The diffusion of service innovations therefore mainly depends on their acceptance of such innovations. Traditionally, audiology frontline employees acted in a stable market environment characterized by unchanged market conditions. Hearing aid markets are highly regulated, and they are compartmentalized into service organizations in which frontline employees provide hearing aids and complementary services in local stores and hearing aid technology manufacturers that focus on product development and construction. Both radical and market entrant innovations gained importance in this field within the last few years (Garrelfis et al., 2021). Technologies, like artificial intelligence and advanced remote communications, are increasingly utilized by originally product-oriented technology manufacturers to enter the service market. For instance, hearing aid technology manufacturers increasingly sell hearing aids 'over-the-counter' (Blustein et al., 2022) and implement complementary services without frontline employee intervention. The recent decision of the U.S. Food and Drug Administration to allow direct purchases of hearing aids from stores or online retailers (FDA, 2022) confirms these dynamics, which are also becoming more apparent in the investigated market in Germany. As a result, audiology frontline employees increasingly face service innovations that disrupt existing value creation models and individual competencies. Therefore, we believe that the field of audiology is a very suitable environment for investigating our research question.

### 4.2 | Procedure and manipulation

We conducted an experimental vignette study. Vignettes are 'descriptions of hypothetical situations' (Shamon et al., 2022) that represent different factors designed as an experiment using different factorial levels (Auspurg & Hinz, 2015). In this study, the frontline employees were randomly assigned to a four-group factorial design ( $2 \times 2$ ) to manipulate the *degree of innovativeness* (incremental innovation,  $n = 279$ ; radical innovation,  $n = 303$ ) and *competitive threat* (peer-driven innovation,  $n = 286$ ; market entrant innovation,  $n = 296$ ) to empirically assess our proposed research model. The use of vignettes allowed us to experimentally investigate the impact of the *degree of innovativeness* and a *competitive threat* in a real working environment. Through the perception of the individual vignettes and the consequent evaluation of innovation acceptance, we were able to investigate causal relationships between these sensitive topics in the best possible way. Finally, and in contrast to studies that frequently use student samples, we were able to study a higher number of actual health care professionals simultaneously to balance internal and external validity (Aguinis & Bradley, 2014) and to avoid ethical and organizational barriers of an experimental implementation in field experiments (Gould, 1996).

To manipulate the *degree of innovativeness*, we used a pool of 12 hypothetical service innovation vignettes (6 examples for

incremental innovations and 6 examples for radical innovations) and randomly showed one exemplary service innovation to each participant. Exemplary service innovations range from 'app-based contact' (incremental innovation) to 'AI-based fitting' (radical innovation). The 12 exemplary cases were developed and categorized according to their *degree of innovativeness* based on their technological and market novelty, in workshops we conducted with experts in the field of audiology before the survey was conducted. These experts included the heads of R&D of a large service organization and a hearing aid technology manufacturer. Table S1 provides complete information about the service innovations, including their illustrated descriptions. After we presented one randomly assigned service innovation to each participant, they had to rate their acceptance of the innovation. A total of 279 participants rated their innovation acceptance for one exemplary incremental innovation, and 303 participants rated their innovation acceptance for one exemplary radical innovation (deviation from equal distribution through outlier detection and exclusion of observations with missing values). To further ensure the manipulation effect on the frontline employees, we asked participants to rate whether they 'would have to acquire new knowledge necessary for the innovation'. Participants who were assigned a radical innovation stated that they had to acquire significantly more knowledge for the respective innovations ( $M_{\text{incremental}} = 2.86$ ;  $M_{\text{radical}} = 3.15$ ;  $p = .002$ ).

To manipulate the independent variable of a *competitive threat*, we randomly assigned one of two vignettes to each participant. The respondents were given a scenario that included information that the service innovations originate either from activities by hearing aid technology manufacturers as new service market entrants (*market entrant innovation*) or from other frontline employees (*peer-driven innovation*). The two vignettes were again reviewed by the audiology experts to ensure that they were plausible and realistic. Table S2 provides the full-text vignettes.

The vignettes were part of a field survey that contained 98 questions in total and took approximately 25 min to complete.

We promoted the survey via corporate newsletters and the central academy for hearing care. We surveyed a total of 671 frontline employees. We considered 582 completed questionnaires for further analysis, after outlier detection and due to missing values. The participating frontline employees work in local stores across Germany, in an average workgroup size of 3.82 employees. The frontline employees in the sample (63% female;  $M_{\text{age}} = 20\text{--}29$  years) work in both a larger retail store and smaller and independent stores. They have an average tenure of 11 years ( $M = 11.07$ ,  $SD = 9.53$ ). We introduced the survey by asking employees to share their perceptions of the relevance of digital transformation and future service innovations. The questionnaire was accessible to all positions, from trainees to store managers, to capture a real-world picture of the service frontline. Table 1 summarizes the characteristics of the study according to the four groups, which we describe below.

### 4.3 | Measures

The independent variables *degree of innovativeness* and *competitive threat* are operationalized as dummy variables (*degree of innovativeness*: 1 = radical innovation, 0 = incremental innovation; *competitive threat*: 1 = market entrant innovation, 0 = peer-driven innovation). To measure our survey-based variables, we applied existing and already validated scales. We measured our dependent variable *innovation acceptance* as an employee's own attitude to the innovation, as well as their perceived attitude of relevant social actors. We thus follow the TRA (Fishbein & Ajzen, 1975), because both determinants together finally shape an employee's intended and actual behaviour. We based the items on previous research on technology acceptance and adapted them to the investigated service innovation context (Venkatesh et al., 2003). Exemplary items are 'Using the service innovation is a good idea' and 'My colleagues think that I should use the service innovation'. The factor analysis

**TABLE 1** Overview of the study according to the four distinct groups ( $N = 582$ ).

Degree of innovativeness		Incremental innovation ( $N = 279$ )		Radical innovation ( $N = 303$ )	
		Peer innovation ( $N = 133$ )	Market entrant innovation ( $N = 146$ )	Peer innovation ( $N = 153$ )	Market entrant innovation ( $N = 150$ )
<b>Competitive threat</b>					
Gender	Male	33.8%	40.4%	34.0%	39.3%
	Female	66.2%	59.6%	66.0%	60.7%
Age	Under 30 years	48.1%	62.3%	52.9%	54.7%
	Over 30 years	51.9%	37.7%	47.1%	45.3%
Tenure	Ø Years	11.76	9.82	10.89	11.88
Store size	Ø Store size	3.69	3.91	3.91	3.74
Innovation acceptance	Ø 5-point Likert score	3.58	3.58	3.05	3.02
Information exchange	Ø 5-point Likert score	3.38	3.49	3.46	3.44
Entrepreneurial orientation	Ø 5-point Likert score	3.39	3.34	3.36	3.21
Innovative work behaviour	Ø 5-point Likert score	2.28	2.65	2.34	2.32

Note: Ø Store size reflects the average number of frontline employees per local service store.

reveals that all items load on the same factor. Therefore, we combine them into one higher order construct of *innovation acceptance* (Costello & Osborne, 2005). The first moderator, *information exchange*, originates from three items from the scale of information orientation by Marchand et al. (2002): For example, 'I often exchange information with the people with whom I work regularly.' The second moderator, *entrepreneurial orientation*, is measured by a shortened seven-item scale from the well-established construct by Covin and Slevin (1989), with items like 'It is very often that our business is the first to introduce new products, services, administrative techniques, etc.'

Several other variables could affect innovation acceptance in our context and should therefore be controlled for. We integrated the control variables *gender*, *age*, *tenure*, *store size* and *innovative work behaviour*. *Gender* is a dummy variable with the value 1 for female and 0 for male. *Age* is measured as a categorical variable and considered as a dummy variable with the value 1 for '>30 years' and 0 for '<30 years'. *Tenure* (in years) and *store size* (number of employees per store) are measured with actual values. We also controlled for

employee's *innovative work behaviour* by using four items from De Jong and Den Hartog (2010). Innovative work behaviour reflects employees' intentional behaviour of initiating and introducing new ideas, products, processes, and procedures (De Jong & Den Hartog, 2010; Farr & Ford, 1990). Using this variable, we aimed to control for employees who tend to accept disruptive service innovations because of their general open attitude to innovations.

Table 2 summarizes the scale-based variables that we used for this study, as well as their corresponding factor loadings and psychometric properties. We ran factor analysis using a principal component analysis with varimax rotation and extracted all factors with eigenvalues greater than 1. All items were assessed on a 5-point Likert scale with endpoints of *strongly disagree* and *strongly agree*. We further considered the assumptions of normality, linearity and homoscedasticity for all independent variables and the dependent variable. We standardized the moderating variables for moderation analyses (Hypotheses 3a, 3b, 4a and 4b) (Aiken & West, 1991). For the plot of significant interaction effects, we used the standardized regression coefficients of all variables (intercept = 0).

**TABLE 2** Measurement of innovation acceptance, moderating variables and scale-based control variables.

	Factor loadings
<b>Innovation acceptance</b> (based on Fishbein & Ajzen, 1975; Venkatesh et al., 2003) (AVE = .68, CR = .92)	
1. Using the service innovation is a good idea.	.883
2. I would find the service innovation useful in my job.	.908
3. I would like working with the service innovation.	.890
4. My colleagues think that I should use the service innovation.	.810
5. My association think that I should use the service innovation.	.737
6. My supervisors think that I should use the service innovation.	.745
7. I think that my customers would respond positively to the service innovation.	.777
<b>Entrepreneurial orientation</b> (based on Covin & Slevin, 1989) (AVE = .47, CR = .81)	
1. Our firm actively introduce improvements and innovations in our business.	.682
2. Changes in our product or service lines have been quite dramatic.	.580
3. Our firm encourages development of employees' ideas for the purpose of business improvement.	.677
4. We always try to take initiative in every situation (e.g., against competitors, in projects, when working with others etc.).	.702
5. It is very often that our business is the first to introduce new products, services, administrative techniques etc.	.733
6. People in our business are encouraged to take calculated risks with new ideas.	.697
7. Typically, we adopt a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities.	.728
<b>Information exchange</b> (based on Marchand et al., 2002) (AVE = .57, CR = .63)	
1. I often exchange information with the people with whom I work regularly.	.827
2. I often exchange information with people outside of my regular work unit but within my organization.	.732
3. The people I work with regularly share information on errors or failures openly.	.720
<b>Innovative work behaviour</b> (based on De Jong & Den Hartog, 2010) (AVE = .72, CR = .87)	
1. I create new ideas for difficult issues.	.791
2. I make organizational members enthusiastic for innovative ideas.	.883
3. I mobilize support for innovative ideas.	.866
4. I transform innovative ideas into useful applications.	.862

Note: Items were measured with 5-point Likert scale where 1 is *strongly disagree* and 5 is *strongly agree*. Abbreviations: AVE, average variance extracted; CR, composite reliability.



We adopted various procedures to increase the validity of our results. All employees were informed at the start that their answers would be treated completely anonymously and confidentially. We emphasized that the data would only be used on an aggregate level, and we did not reveal the research objectives to the employees. To reduce ambiguity, we kept the questions in the questionnaire as simple as possible (Jarvis et al., 2003). Finally, we separated items from dependent and moderation variables so that their direct connection was not visible to the employees. The core independent variables are based on manipulation and, as such, are not influenced by subjective evaluations. In the course of the statistical analysis, we additionally applied Harman's single-factor test (Podsakoff et al., 2003). In this context, we executed a principal component analysis with all independent and dependent variables, from which no single factor emerged. The first factor only accounted for 20.37% of the total variance, falling below the common threshold of 50%, so we can assume that the dataset does not suffer from a common method bias (Podsakoff et al., 2003).

## 5 | RESULTS

Table 3 shows the correlation matrix for all relevant constructs, their means and standard deviations. We used multiple ordinary least squares (OLS) regression analysis to assess the hypothesized relationships. Table 4 shows the results for Models 1–8, including the regression coefficients, significance, *F* values, *R*<sup>2</sup> values and adjusted *R*<sup>2</sup> values. Change in *R*<sup>2</sup> refers to Model 1 for Model 2 and to Model 2 for all other models. Model 1 only shows the effects of the control variables on innovation acceptance. Model 2 includes the effects of the independent variables. In Model 3, we assessed the moderating variables for their main effects. In Models 4 and 5, we consider the moderating effects of information exchange. In Models 6 and 7, we look at the moderating effects of entrepreneurial orientation. Model

8 represents the full model. To assess the moderators' impact on the effects of radical innovations and market entrant innovations, we illustrate the slopes of the significant interaction terms analysis (Aiken & West, 1991).

### 5.1 | Effects of control variables on innovation acceptance

Model 1 in Table 4 reveals that two control variables significantly impact innovation acceptance. As expected, innovative work behaviour has a positive effect on innovation acceptance ( $b = .244$ ,  $p = .000$ ), which is in line with past research (J.-C. Huang, 2013; Sagnier et al., 2020). Moreover, the store size has a significant and negative impact ( $b = -.038$ ,  $p = .030$ ), which gives a first indication of collective effects on innovation acceptance. Model 1 explains 7% of the variance in total.

### 5.2 | Main effects on innovation acceptance

Radical innovations, with a higher degree of innovativeness (Hypothesis 1), have a significant and negative effect on employees' acceptance, compared with incremental innovations, which supports Hypothesis 1 ( $b = -.517$ ,  $p = .000$ ). Regarding a competitive threat, market entrant innovations (Hypothesis 2) have no significant direct effect on employees' acceptance in comparison with peer-driven innovations, which gives no support for Hypothesis 2. With Model 2, we achieve an additional explained variance of 9%. For model completeness, we assessed the main effects of the two moderating variables in Model 3: Information exchange has no significant direct effect ( $b = .058$ ,  $p = .101$ ), whereas entrepreneurial orientation has a positive direct effect ( $b = .163$ ,  $p = .000$ ). Model 3 explains an additional variance of 3% in reference to Model 2.

**TABLE 3** Descriptive statistics and correlations ( $N = 582$ ).

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Innovation acceptance	3.29	0.88	-									
2. Innovative work behaviour	2.40	0.94	.26**	-								
3. Gender	0.45	0.50	.05	-.05	-							
4. Age	0.63	0.48	-.07	-.16**	-.02	-						
5. Tenure	11.07	9.53	.07	-.02	.67**	.07	-					
6. Store size	3.82	2.04	-.08	.05	.01	-.01	-.05	-				
7. Degree of innovativeness	0.52	0.50	-.31**	-.08	.02	.01	.03	.00	-			
8. Competitive threat	0.51	0.50	.00	.09*	-.08	-.06	-.02	.00	-.03	-		
9. Information exchange	3.44	0.79	.14**	.25**	-.06	.04	-.03	.07	.01	.03	-	
10. Entrepreneurial orientation	3.32	0.67	.24**	.12**	.03	.16**	.05	-.14**	-.06	-.07	.23**	-

Note: Gender was coded: 1 = female, 0 = male. Age was coded: 1 = above 30 years, 0 = under 30 years. Tenure was assessed by number of years. Store size was assessed by number of employees. Degree of innovativeness was coded: 1 = radical innovation, 0 = incremental innovation. Competitive threat was coded: 1 = market entrant innovation, 0 = peer-driven innovation.

\*\* $p \leq .01$ .

\* $p \leq .05$ .

**TABLE 4** Effects on the innovation acceptance by frontline employees (N = 582).

Variables	DV = innovation acceptance							
	Model 1		Model 2		Model 3		Model 4	
	B	SE	B	SE	B	SE	B	SE
Constant	2.81***	0.14	3.15***	0.14	3.24***	0.14	3.25***	0.14
Innovative work behaviour	0.24***	0.04	0.22***	0.04	0.18***	0.04	0.18***	0.04
Gender	-0.06	0.07	-0.07	0.07	-0.14#	0.07	-0.13#	0.07
Age	0.06	0.10	0.04	0.09	0.04	0.09	0.04	0.09
Tenure	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.00
Store size	-0.04*	0.02	-0.04*	0.02	-0.03	0.02	-0.02	0.02
Degree of innovativeness			-0.52***	0.07	-0.51***	0.07	-0.51***	0.07
Competitive threat			-0.05	0.07	-0.03	0.07	-0.03	0.07
Information exchange					0.06	0.04	0.15**	0.05
Entrepreneurial orientation					0.16***	0.04	0.16***	0.03
Degree of innovativeness × Information exchange								
Competitive threat × Information exchange								
Degree of innovativeness × Entrepreneurial orientation								
Competitive threat × Entrepreneurial orientation								
F	10.17		16.39		16.53		15.85	
ΔF	10.17		29.42		14.37		7.88	
R <sup>2</sup>	.08		.17		.21		.22	
Adj. R <sup>2</sup>	.07		.16		.19		.20	
ΔR <sup>2</sup>	.08		.09		.04		.04	

Abbreviations: B, unstandardized beta coefficients; DV, dependent variable; SE, standard errors.

\*\*\*p ≤ .001 (two-tailed).

\*\*p ≤ .01.

\*p ≤ .05.

#p ≤ .10.

TABLE 4 (Continued)

Variables	DV = innovation acceptance															
	Model 5		Model 6		Model 7		Model 8		Model 5		Model 6		Model 7		Model 8	
	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE	B	SE
Constant	3.23***	0.14	3.25***	0.14	3.25***	0.14	3.26***	0.14	3.23***	0.14	3.25***	0.14	3.26***	0.14	3.23***	0.14
Innovative work behaviour	0.18***	0.04	0.18***	0.04	0.18***	0.04	0.17***	0.04	0.18***	0.04	0.18***	0.04	0.17***	0.04	0.18***	0.04
Gender	-0.14#	0.07	-0.14*	0.07	-0.14#	0.07	-0.13#	0.07	-0.14#	0.07	-0.14#	0.07	-0.13#	0.07	-0.14#	0.07
Age	0.04	0.09	0.03	0.09	0.03	0.09	0.03	0.09	0.04	0.03	0.09	0.03	0.03	0.09	0.03	0.09
Tenure	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00
Store size	-0.03	0.02	-0.02	0.02	-0.03	0.02	-0.02	0.02	-0.03	0.02	-0.03	0.02	-0.02	0.02	-0.02	0.02
Degree of innovativeness	-0.50***	0.07	-0.50***	0.07	-0.50***	0.07	-0.50***	0.07	-0.50***	0.07	-0.50***	0.07	-0.50***	0.07	-0.50***	0.07
Competitive threat	-0.03	0.07	-0.03	0.07	-0.03	0.07	-0.03	0.07	-0.03	0.07	-0.03	0.07	-0.04	0.07	-0.03	0.07
Information exchange	0.03	0.05	0.06	0.04	0.05	0.04	0.13*	0.04	0.05	0.04	0.05	0.04	0.13*	0.04	0.06	0.06
Entrepreneurial orientation	0.16***	0.04	0.22***	0.05	0.22***	0.05	0.11#	0.05	0.08	0.05	0.08	0.05	0.11#	0.05	0.11#	0.07
Degree of innovativeness × Information exchange																
Competitive threat × Information exchange	0.05	0.07														
Degree of innovativeness × Entrepreneurial orientation																
Competitive threat × Entrepreneurial orientation			-0.10	0.07												
F	14.93		15.13		15.42		12.66		15.42		15.42		12.66		15.42	
ΔF	0.63		2.19		4.50		3.35		4.50		4.50		3.35		4.50	
R <sup>2</sup>	.21		.21		.21		.23		.21		.21		.23		.21	
Adj. R <sup>2</sup>	.19		.20		.20		.21		.20		.20		.21		.21	
ΔR <sup>2</sup>	.03		.04		.04		.05		.04		.04		.05		.05	

Abbreviations: B, unstandardized beta coefficients; DV, dependent variable; SE, standard errors.

\*\*\*p ≤ .001 (two-tailed).

\*\*p ≤ .01.

\*p ≤ .05.

#p ≤ .10.

### 5.3 | Moderating effects of information exchange

In Models 4 and 5, we sequentially added the interaction terms of our independent variable and the first moderator, information exchange. Information exchange significantly moderates the negative relationship between the degree of innovativeness and service innovation acceptance ( $b = -.185, p = .005$ ), which supports Hypothesis 3a. Regarding Hypothesis 3b, the interaction between information exchange and competitive threat on service innovation acceptance remains insignificant ( $b = .053, p = .427$ ). In comparison with Model 2, Model 4 (Hypothesis 3a) explains an additional variance of 4%, and Model 5 (Hypothesis 3b) an additional variance of 3%.

### 5.4 | Moderating effects of entrepreneurial orientation

In Models 6 and 7, we sequentially added the interaction terms of our independent variable and the second moderator, entrepreneurial orientation. In Model 6, we found a negative but insignificant interaction effect between entrepreneurial orientation and degree of innovativeness ( $b = -.100, p = .140$ ), which gives no support for Hypothesis 4a. Supporting Hypothesis 4b, however, the interaction effect in Model 7 between entrepreneurial orientation and competitive threat is significant and positive ( $b = .142, p = .034$ ). In comparison with Model 2, Model 6 (Hypothesis 4a) explains an additional variance of 4%, and Model 7 (Hypothesis 4b) an additional variance of 5%.

### 5.5 | Graphical representation

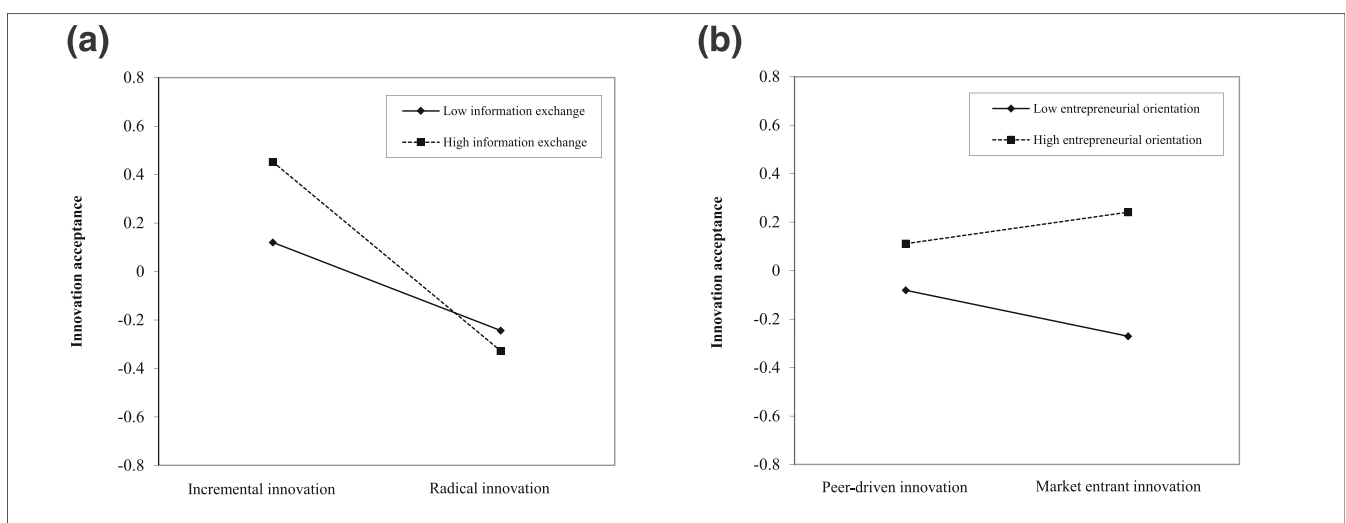
Two simple slopes illustrate the marginal interaction results of the two significant moderation effects (Hypotheses 3a and 4b). The

graphs in Figure 2a,b differentiate between high values (one standard deviation above mean value) and low values (one standard deviation below mean value) of the moderator variables, as well as between the two binary levels of the independent variables (Aiken & West, 1991). This offers further clarification of the results of the regression analysis. Figure 2a illustrates the two-way interaction effect between information exchange and degree of innovativeness on innovation acceptance. The left-hand side shows the acceptance values for incremental innovations, and the right-hand side those for radical innovations. The solid line indicates a low level of information exchange, and the dotted line a high level of information exchange. The negative impact of the degree of innovativeness on service innovation acceptance increases for a higher intensity of information exchanges. A higher information exchange within workgroups is specifically beneficial to an increased acceptance of incremental innovation.

Figure 2b illustrates the two-way interaction effect between entrepreneurial orientation and the competitive threat on innovation acceptance. The left-hand side shows the acceptance values for peer-driven innovations, and the right-hand side those for market entrant innovations. The solid line indicates a low level of entrepreneurial orientation, and the dotted line a high level of entrepreneurial orientation. A high entrepreneurial orientation level led to a stronger acceptance of market entrant innovations. If the organization exhibits a low level of entrepreneurial orientation, innovations that originate from market entrants will result in limited innovation acceptance.

### 5.6 | Additional analyses

The regression analysis used an aggregated indicator of innovation acceptance that combines employees' own attitudes to the service innovation and employees' perceived attitude of relevant groups and institutions. To analyse how the results are affected by the perceived



**FIGURE 2** Simple slope analysis for the significant moderation effect of (a) information exchange (Hypothesis 3a) and (b) entrepreneurial orientation (Hypothesis 4b).

social influence, we excluded the social norms-related items and analysed *employees' individual attitude* to the service innovation as the only dimension of innovation acceptance. As such, the alternative measure only considers three items ('Using the service innovation is a good idea', 'I would find the service innovation useful in my job' and 'I like working with the service innovation'). The alternative regression model confirms the results of the main model, with similar significance levels for the main effects (Hypothesis 1:  $b = -.700$ ,  $p = .000$ ) and slightly decreasing significance levels for the interaction terms (Hypothesis 3a:  $b = -.142$ ,  $p = .085$ ; Hypothesis 4b:  $b = .138$ ,  $p = .096$ ).

Although our research model allows the inclusion of higher order interactions, we found no significant three-way interactions. As we excluded observations that contain missing values ('listwise deletion'), we additionally checked the results after we applied multiple imputation (MI), which is the most prominent technique used in the statistical literature to manage missing data. Although this resulted in relatively few excluded observations (41 participants), we repeated our analysis, because we aimed to complement our complete-case analysis to avoid a potential non-response bias. The regression results of the imputed dataset also confirm the results of our main regression model with similar significance levels.

## 6 | DISCUSSION

We analysed the innovation acceptance by frontline employees in case of (1) a *higher degree of innovativeness* (radical innovations) and (2) a *competitive threat* caused by technology manufacturers in the supply chain as new service market entrants (market entrant innovations). By adding a collective sensemaking perspective, the study pays special attention to the moderating role of *information exchange* within the workgroup, as well as to a firm's *entrepreneurial orientation*, which can impact the tension that frontline employees experience between the desire to improve existing services and accepting service innovations with a higher disruptive potential. Table 5 summarizes the findings.

**TABLE 5** Summary—Results of hypotheses testing.

Hypothesis	Description	
Hypothesis 1	The degree of innovativeness affects frontline employees in such a way that they accept radical innovations less readily than incremental innovations.	Supported
Hypothesis 2	A competitive threat affects frontline employees in such a way that they accept market entrant innovations less readily than peer-driven innovations.	Not supported
Hypothesis 3a	Information exchange within the workgroup strengthens the negative relationship between the degree of innovativeness and innovation acceptance.	Supported
Hypothesis 3b	Information exchange within the workgroup strengthens the negative relationship between a competitive threat and innovation acceptance.	Not supported
Hypothesis 4a	Entrepreneurial orientation of the organization weakens the negative relationship between the degree of innovativeness and innovation acceptance.	Not supported
Hypothesis 4b	Entrepreneurial orientation of the organization weakens the negative relationship between a competitive threat and innovation acceptance.	Supported

### 6.1 | Effects of the degree of innovativeness

First, we examined how the disruptive potential of service innovations in terms of more *radical innovations* influences the acceptance of such innovations by frontline employees. The results support the hypothesis that radical innovations are accepted less readily than more incremental innovations (Hypothesis 1). This is consistent with research on the challenges of radical innovations (Das et al., 2018) and the impact of service innovations that lead to changes in the role of frontline employees within transformed service models in particular (Cadwallader et al., 2010; Rampersad, 2020). From a theoretical perspective, it shows how the disruptive potential of service innovation, in terms of 'departures from previous practices and [...] significant changes in organizational activities and the service system' (Perks et al., 2012), negatively influences employees' own attitudes and employees' perception of the attitude of relevant groups and institutions. The uncertainty associated with radical innovations is particularly evident when looking at the specific characteristics of the service provision. We show that frontline employees prefer incremental innovations that improve established service processes, strengthen the service quality and preserve the operational stability of current service relations. In contrast to this, perceptions of uncertain future roles, strategic dependencies and new relationships in the triad of end users, frontline employees and technical systems can hamper more objective information processing and lead to a lack of acceptance of radical innovation.

### 6.2 | Effects of the competitive threat by market entrants

As a second step, we analysed how the disruptive potential of *market entrant innovations* influences the acceptance of such innovations by frontline employees. We found no significant difference between the acceptance of peer-driven innovations and market entrant innovations (Hypothesis 2). The negative implications of a competitive threat might be mitigated by employees' trust in manufacturers as

technology experts. Technology manufacturers have experience in, and a powerful reputation for, solving technological challenges. A collaboration between technology manufacturers and a service organization is common in the field of audiology. This reputation may also foster the recognition of such manufacturers' potential for service innovation. In times of limited innovation experience and high levels of uncertainty, organizations and their employees may be particularly prone to leverage external knowledge and expertise for their own sensemaking process (Gattringer et al., 2021; Seidl & Werle, 2018). In this context, employees can appreciate external innovation expertise as an opportunity to complement their own knowledge and to decrease their uncertainty levels that result from more radical innovations, helping them to proceed in their individual sensemaking through externally provided frames (Seidl & Werle, 2018).

### 6.3 | Moderating impact of information exchange

Third, we investigated how the collective processes of *information exchange* within the workgroup moderate the impact of radical and market entrant innovations. Intensive information exchange on an operational level significantly strengthens the negative relationship between radical innovations and service innovation acceptance (Hypothesis 3a). Intensive information exchange enhances innovation acceptance in the case of incremental innovations. Workgroups that intensively exchange information about operational aspects can thus impact employees' functional fixedness on preserving the status quo through formal and informal agreements on standard procedures and service routines. This alignment, within stable and well-functioning workgroups, supports incremental improvements and strengthens frontline employees' competencies. Frontline employees embedded in such more cohesive workgroups may show a tendency towards uniformity, which reduces their acceptance of unfamiliar information (Janis, 1972). The negative effects of information exchange on the acceptance of radical innovations are therefore particularly visible in traditional, well-structured service markets that rely on established routines and path dependencies, such as health care, specifically. In contrast, we found no evidence for an impact of information exchange within the workgroup on the relationship between a competitive threat through market entrants and innovation acceptance. The perception of the relevance of market entrant innovation seems to be dominated by the individual beliefs of frontline employees, and the workgroup may become less influential. These findings may underline the possibility that direct collective influences of the perceptions of a workgroup are more relevant to elicit immediate influences of innovation on the efficiency and quality of service processes. This may be reflected by the differentiation between incremental and radical innovations. The differences between the impact of peer versus market entrant innovation may rather be grounded in strategic and more long-term influences on the market position of service organizations, for example. The acceptance of market entrant innovation may rather be influenced by higher order collective sensemaking processes of the overall organization.

### 6.4 | Moderating impact of entrepreneurial orientation

Fourth, we investigated how the collective effect of *entrepreneurial orientation* within the overall organization moderates the impact of radical and market entrant innovations. Entrepreneurial orientation significantly weakens the negative relationship between market entrant innovations (i.e., manufacturer driven) and service innovation acceptance. The results, which support Hypothesis 4b, show that the innovativeness, proactiveness and risk-taking of the organization play an important role in the acceptance of innovations, which may affect the strategy, structure and culture of the overall organization (Covin & Slevin, 1989). Organizations that proactively support innovation can benefit from higher innovation acceptance levels, especially in contexts with traditionally rigid cultures and mindsets, like health care (Heinze & Heinze, 2020). The results thus emphasize that organizational support, through innovation-oriented sensegiving, increases the acceptance of innovations that originate from technical suppliers. Frontline employees may believe in the capability of their firm to sustain a valuable market position despite bigger shares of value contributions by technology-driven market entrants. In this situation, they may focus on the potential gains of the disruptive innovation (e.g., higher service quality by advanced smart services) and may downplay the relevance of potential losses (e.g., as a result of the automated provision of standard services). In contrast, we found no significant moderation effect on the relationship between the degree of innovativeness and innovation acceptance (Hypothesis 4a). Radical innovations could trigger immediate consequences for employees. The more present cognitive framework of their own workgroup may be of greater importance than the identity of the entire organization. Furthermore, the audiology context is characterized by the fact that employees work in local stores and only indirectly perceive support from the entire organization and then also spread over the long term. That being the case, higher levels of entrepreneurial orientation play a stronger role when employees cope with the competitive threat of market entrant innovations.

### 6.5 | Theoretical implications

Our experimental vignette study, in which we manipulated the degree of innovativeness and the competitive threat, increases the causality of the relationships we investigated (Aguinis & Bradley, 2014). Hence, the valid results of this study offer several contributions to service innovation research. First, we empirically analysed the acceptance of service innovation by frontline employees, in line with current research (Paluch et al., 2021), and we showed that such employees are less likely to accept more disruptive service innovations. We complement and expand on research, because we not only focused on the degree of innovativeness but also considered the impact of a competitive threat through market entrant innovations. In contrast to research that emphasizes organizational resistance to external knowledge (Burcharth et al., 2014; Piller & Antons, 2015), we provide empirical

evidence that technology manufacturers in the service sector, as highly relevant sources of external knowledge, may possess an impressive innovation-related reputation and may profit from established prior relationships with the service provider. Such positive recognition may decrease the perception of the potential competitive threat if former suppliers become competitors. Such market entrant innovations come across as a 'wolf in sheep's clothing' situation, and they therefore have no direct effect on frontline employees' innovation acceptance. We thus extend past research that took a more generalized view of service innovations by specifically focusing on frontline employees' innovation acceptance when faced with a disruptive innovation.

Second, our supported theoretical framework specifically focusing on the moderating role of collective sensemaking processes. Thereby, we distinguish between collective sensemaking processes on the workgroup level and on the organization level. Both processes have a significant, but different, effect on employees' innovation acceptance. A collective perspective can strongly alter individual perceptions (Morrison & Milliken, 2000; Weick & Roberts, 1993). Investigating audiology as a suitable example within health care, we showed that an intense information exchange within a workgroup reinforces frontline employees' focus on more incremental innovation, whereas a more focused entrepreneurial orientation of the overall service organization increases the acceptance of market entrant innovations and, therefore, decreases the negative perception of a competitive threat. We believe that the results show that collective sensemaking processes and related cognitive frames (Weick, 1979), in particular, affect the perception of gains and losses on a more operational level (i.e., radical service innovation), whereas organizational sensegiving (Gioia & Chittipeddi, 1991; Maitlis & Lawrence, 2007) influences the recognition of the strategic consequences of disruptive innovation (i.e., the competitive threat).

## 6.6 | Limitations and directions for future research

Our study has limitations that offer directions for future research. First, we call for research that provides further evidence of our theoretical reasoning regarding the individual and collective levels. Future studies can focus, for instance, on the direct measurement of perceived uncertainty and competitive threat because of disruptive service innovations on the individual level. Longitudinal studies, which track individual and collective sensemaking processes, may help to explore the formation of attitudes. On the organization level, future research could investigate specific management approaches that aim to increase employees' perception at the level of individual workgroups and that of the overall organization. For instance, specific communication strategies and specific forms of leadership may support innovation on the workgroup and organization levels (García-Morales et al., 2012; van der Voet & Steijn, 2021).

Second, we only focus on how information exchange about current work practices affects the relationship between the degree of innovativeness and innovation acceptance. As we have seen that such

forms are beneficial for the acceptance of incremental innovations, further research questions could address the specific, concrete contents of communication on workgroup and organization levels that impact the innovation acceptance of radical innovations. This should also include the actual organization of the local service stores. Although we believe that the rather small offices (a mean of less than four employees) show intensive communication between the entire team, in reality, the intensity of interaction may be limited, for example, due to different working hours. Future research should aim to observe the actual information exchange, rather than focusing on the perception of the team. Third, we focused on technology manufacturers in the supply chain as new service market entrants. Future research could also focus on the acceptance of service innovations that originate from market entrants from other technology domains. Finally, future research using other methodological approaches could prove the robustness of our results and could focus on other kinds of innovations and, thus, maybe replicate the investigation in other settings, industries and countries.

## 6.7 | Implications for practice

Our study underlines the predominance of innovation resistance if employees are confronted with innovation with a higher degree of innovativeness. Therefore, the first and most straightforward implication is that managers need to understand the individual perceptions of gains/benefits and losses/efforts. Although these effects may be very specific, our study gives a relevant example of the increasing trend to use data and artificial intelligence-based smart services that may disrupt entire service landscapes. Also, we provide valuable insights in collective effects on frontline employees' acceptance of innovation with a higher degree of innovativeness and as a competitive threat. In the case of *incremental innovations*, organizations should foster intensive information exchange about operational topics and current service activities within workgroups. For instance, they could instruct store managers to intensify communication by frequently conducting workshops and holding meetings where frontline employees share their service experiences and establish routines to achieve a consistent service quality. Intensive knowledge exchange can have a positive effect, because these employees' expert knowledge and experience are considered an essential source of new service innovations (Engen & Magnusson, 2018; Melton & Hartline, 2013).

In the case of *radical innovations*, the results show that frequent information exchange on an operational level does not increase innovation acceptance but rather limits it because of a reinforced focus on preserving and slowly improving the status quo. We suggest that organizations should avoid this negative impact by compiling team communications that also include new and unfamiliar information. For instance, they could use workshops and meetings to discuss current trends in digital health care, forecast future trends in audiology and communicate the benefits of more radical service innovations. Organizations could highlight ways in which more radical innovations can

complement the work of frontline employees, enabling personnel to focus on the human-related aspects of their service provision (Willems et al., 2022). Employee's ability to adapt to new roles and competencies in future technology-driven service processes may thus decrease the actual and perceived level of job insecurity (Rampersad, 2020).

Finally, organizations that aim to increase the acceptance of market entrant innovations should implement organizational processes and practices that aim to create an entrepreneurial orientation. As an example, organizations could systematically integrate frontline employees and other stakeholders in the implementation of market entrant innovations, start collaborations with technology manufacturers in the supply chain to increase innovation orientation or communicate an innovation strategy and exemplify a culture that values proactivity, innovativeness and risk-taking (Agarwal & Selen, 2009; Salunke et al., 2011). In addition, a certain degree of formalization of the innovation process, which includes stage-and-gate-like systems, facilitates understanding of the consequences of disruptive innovation, decreases uncertainty and has been shown to elicit adequate management reaction to potential challenges (Schultz et al., 2019). Our study's most immediate practical implication, therefore, suggests that organizational leaders can successfully improve frontline employees' level of innovation acceptance when they specifically consider their organization's degree of innovativeness and the presence of a competitive threat.

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## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

## ORCID

Christopher Garrelfs  <https://orcid.org/0000-0002-0579-5952>

Carsten Schultz  <https://orcid.org/0000-0002-5984-9872>

Marie Luengen  <https://orcid.org/0000-0002-3842-5050>

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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## AUTHOR BIOGRAPHIES

**Mr. Christopher Garrelfs** is a PhD candidate and a research assistant at the Kiel Institute for Responsible Innovation at Kiel University, Germany. He holds an M.Sc. in Business Administration from Kiel University. His research interests cover service innovation, open innovation and digital innovation. Above all, he focuses on the human side of innovation and employees' innovative behaviour in times of disruption.

**Dr. Carsten Schultz** is a professor for technology management at the Kiel Institute for Responsible Innovation at Kiel University, Germany. He received his doctorate from Berlin University of Technology. His research concentrates on innovation and network management with a focus on service innovation and product-service systems, the management of radical innovations and university–industry collaborations. He has published several articles in academic journals and a number of books including a widely used textbook on innovation management (Hauschildt et al., 7th ed., 2023).

**Ms. Marie Luengen** is a PhD candidate and a research assistant at the Kiel Institute for Responsible Innovation at Kiel University, Germany. She holds an M.Sc. in Business Administration from Kiel University. Her research interests cover the particularities of service innovations in health care and the integration of different user groups, for example, health care professionals and patients, in the innovation process, as well as the needs, requirements and potential barriers of stakeholders.