



Harnessing customer demands for service innovation in business-to-business sales: Evidence from the Turkish HVAC industry

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ABSTRACT

Firms seek effective strategies to enhance service innovation, with salespeople playing a crucial role as intermediaries between firms and customers. Their awareness of workplace challenges and customer needs drives engagement in service innovative behavior (SIB). However, research on the mechanisms shaping innovation in sales roles remains limited. Drawing on Job Demands-Resources Theory and employing an explanatory sequential approach, we examined how customer demandingness fosters service innovation through salesperson resilience and agility. Using PLS-SEM analysis, we assessed direct and indirect effects in a sample of 224 business-to-business (B2B) salespeople in Türkiye's heating, ventilation, and air conditioning (HVAC) industry. A subsequent qualitative case study contextualized these findings and provided further insights into the underlying mechanisms of the tested relationships. The results indicate that customer demandingness positively affects SIB only when mediated by resilience and agility, highlighting the importance of these capabilities. Qualitative insights further suggest that demanding customers can facilitate innovation if salespeople develop these adaptive competencies effectively. Our findings contribute to understanding how challenges in sales environments can drive innovative behaviors. We conclude by discussing managerial implications, limitations, and future research opportunities.

1. Introduction

Service innovation in business-to-business (B2B) contexts increasingly depends on the ability of frontline personnel, such as salespeople, to interpret and respond to evolving customer demands (Akter et al., 2023; Schiefer et al., 2024). Positioned at the intersection of client interaction and internal operations, salespeople often contribute both to revenue generation and to the development of tailored service solutions (Zoltners et al., 2022). Their proximity to customer feedback enables them to identify unmet needs and propose actionable improvements, as seen in Carrier's Smart Service platform, which was developed to address specific comfort-related concerns (Carrier, 2025). Similarly, Trane Technologies' increased financial performance reflects the strategic value of aligning service innovation with customer expectations (Facilities Dive, 2024). That said, in high-contact sectors such as the heating, ventilation, and air conditioning (HVAC) industry, where technical complexity is common, salespeople must navigate repeated rejections and constant engagement, demanding conditions that can

both challenge and stimulate innovation (HubSpot, 2025; Goldsby et al., 2006). These interactions often reveal operational pain points (Hoang et al., 2023), prompting creative problem-solving and adaptive service models (Ahmad et al., 2024; Epler et al., 2023). For instance, during the COVID-19 pandemic, frontline insights led to the rapid implementation of curbside pickup in food services (Epler and Leach, 2021). Nonetheless, without the necessary capabilities to mediate these pressures, high demands can lead to exhaustion and burnout and fail to yield innovative outcomes (Itani et al., 2020; Jung et al., 2022).

However, despite the recognized importance of service innovation, research into the specific mechanisms that drive innovative behaviors among salespeople remains limited, highlighting a significant gap in the literature that warrants further investigation (Ahmad et al., 2024; Epler et al., 2023). Despite the growing recognition of the importance of customer demands and frontline responsiveness, the ways these factors drive service innovative behavior (SIB) remain underexplored (Ohiomah et al., 2020). Here, SIB extends beyond idea generation to include the proactive implementation of new techniques, methods, and

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innovations in service contexts (Hoang et al., 2023; Luu, 2019). This process requires persuading others, securing resources, and executing creative solutions, reflecting a more action-oriented approach than employee creativity, which primarily involves generating novel, groundbreaking ideas (Hu et al., 2025). While previous studies have emphasized the general importance of customer input in shaping service outcomes (Jung et al., 2022), the specific processes that allow salespeople to transform customer demandingness into innovative behaviors have not been adequately explored. This gap is especially pronounced in the B2B sales context, where the complexity of customer needs and the technical nature of service offerings require more nuanced insights (Ahmad et al., 2024).

Thus, further research is needed to elucidate how challenging situations can lead to positive outcomes like service innovation. In particular, the current literature often overlooks the critical influence of adaptive capabilities such as resilience and agility (Kwak et al., 2019; Luu, 2021) in mediating the relationship between customer-driven challenges and innovative behavior. Sales roles inherently involve navigating various job demands, and it is through the development of these adaptive capabilities that salespeople can effectively harness customer challenges to drive innovative behavior. This oversight represents a significant research gap, as understanding these mediating mechanisms is essential for both advancing theoretical frameworks, such as the Job Demands-Resources (JD-R) theory (Bakker and Demerouti, 2017), and informing managerial practices in high-pressure sales environments.

Against this backdrop, this study aims to investigate how customer demandingness drives SIB among salespeople by enhancing their agility and resilience. Drawing on the JD-R theory, this study utilizes an explanatory sequential design to explicate the mechanisms that foster SIB in sales roles, particularly under challenging conditions. Accordingly, this study's central research question is: *How does customer demandingness influence service innovation through resilience and agility in salespeople?* First, we analyze data from 224 B2B salespeople via PLS-SEM to explore how challenging customer interactions can be transformed into opportunities for innovation. Afterward, we provide insights from qualitative interviews with 10 B2B salespeople from the HVAC industry in Türkiye.

Here, JD-R theory provides a useful lens for examining salesperson behavior (Matthews and Rutherford, 2020), as it accounts for how job demands and resources shape outcomes such as burnout, job satisfaction, and performance (Bakker and Demerouti, 2017). Within this framework, challenge demands can enhance engagement and promote value-based selling (Ma et al., 2024), whereas hindrance demands are associated with negative consequences like depersonalization and burnout (Matthews and Rutherford, 2020). Customer demandingness, characterized by frequent, urgent, and specific requests, represents a significant challenge demand (Agnihotri et al., 2017; Luu, 2021). While such demands can be taxing (Ahmad et al., 2024), they also encourage agility, skill development, and innovative problem-solving (Bande et al., 2016; Inyang et al., 2023). Customer demandingness, by necessitating adaptive responses, can boost salesperson motivation, engagement, and service innovation (Jung et al., 2022; Yeboah Banin et al., 2016).

Based on its insights, this study aims to make three contributions. First, it broadens the service innovation literature by demonstrating how salespeople, as frontline employees, contribute to firms' innovation efforts. Instead of viewing innovation merely as a top-down process, our findings emphasize that employees, especially salespeople, create and implement innovative solutions. Second, this study enhances sales research by clarifying how customer demandingness drives SIB through resilience and agility. Previous research has focused on the direct effects of customer demands on performance and stress, whereas this study illustrates how salespeople transform challenges into opportunities for innovation. Additionally, this study extends JD-R theory by refining the concept of job demands, emphasizing customer demandingness as a distinct pressure arising from customer interactions that can represent a

challenge demand. We also highlight that the challenging nature of this demand is influenced by mediators, specifically the resilience and agility of salespeople in our study.

2. Theoretical background and hypothesis development

2.1. Service innovation and salespeople

Firms increasingly recognize service innovation as a critical strategy for maintaining competitiveness, driven by the need to differentiate themselves and adapt to rapidly evolving consumer demands (Schiefer et al., 2024). Defined as introducing new or significantly improved services, processes, or delivery methods, service innovation has emerged as a key determinant of organizational success (Akte et al., 2023). While several factors influence service innovation capacity, including organizational culture, leadership, and resource availability, these factors are all limited, which requires utilizing internal resources (Alqhaiwi et al., 2023; Luu, 2019). As frontline employees, salespeople play a key role in gathering valuable customer insights and generating creative solutions for service innovation (Hoang et al., 2023). Their regular interactions enable them to identify emerging needs and translate customer feedback into actionable ideas. Prior research highlights their contribution to innovation by representing customer interests (Bande and Fernández-Ferrín, 2015; Kwak et al., 2019) and facilitating the adoption of new products and services (Epler and Leach, 2021; Yeboah Banin et al., 2016).

Even though salespeople are sometimes seen as a hindrance to innovation (Cankurtaran et al., 2024), they can play an important role in this process by acting as a bridge between customers and the firm's internal resources (Ahmad et al., 2024). In B2B contexts, service innovation involves recombining resources to develop solutions that meet stakeholder needs (Lievens and Blažević, 2021). Salespeople contribute by refining value propositions, adjusting communication strategies such as virtual showrooms, and identifying new market opportunities (Epler and Leach, 2021). Salespeople who are higher on creativity are more customer-oriented and more adaptive and innovative in selling, and organizational and managerial support serve as vital antecedents (Epler et al., 2023). Employee creativity, a vital source of service innovation, is particularly important in this context, as it drives the generation of novel service ideas and improvements to existing offerings (van Wetten et al., 2020). High-pressure situations, such as competitive market demands, can further stimulate these innovative behaviors, underscoring the need to understand the factors influencing such creativity. However, further research is needed to explore how these factors interact to enhance service innovation capabilities (Ohiomah et al., 2020).

2.2. Job Demands-Resources Theory

The Job Demands-Resources (JD-R) theory provides a valuable framework for understanding employee well-being and performance by examining the interaction between job demands and resources. Job demands, such as workload and role ambiguity, necessitate sustained effort and can result in negative outcomes, such as stress and burnout (Bakker and Demerouti, 2017). Conversely, job resources, including social support and autonomy, are crucial for achieving work goals, alleviating job demands, and promoting personal growth, all of which enhance work engagement, job satisfaction, and overall well-being (Bakker and Demerouti, 2024).

Studies demonstrate that salespeople approach job demands through the lens of challenge-hindrance differentiation, where challenge demands (e.g., task non-routineness, customer participation) may foster growth, while hindrance demands (e.g., role ambiguity, team instability) impede performance (Matthews and Rutherford, 2020; Ma et al., 2024). For instance, skill discretion (a challenge demand) enhances personal accomplishment and indirectly boosts job satisfaction, whereas hindrance demands, such as depersonalization, exacerbate burnout

(Matthews and Rutherford, 2020). Importantly, the impact of particular demands, such as customer demandingness, depends on mediating factors like job autonomy or social support. Hoppner et al. (2021) found that increased customer participation did not directly heighten burnout but spurred resource investments when paired with autonomy, highlighting the moderating role of job resources. Similarly, Ma et al. (2024) reveal that team social support buffers against sales complexities, with challenge demands (e.g., demand ambiguity) amplifying the benefits of resources, while hindrance demands (e.g., team instability) weaken them. Despite these insights, further research is needed to elucidate how challenging situations, beyond mitigating burnout or enhancing performance, can catalyze positive outcomes like service innovation.

Thus, adequate mediating resources empower salespeople to engage more effectively, demonstrate proactive behaviors, and sustain high motivation levels (Bande and Fernández-Ferrín, 2015). As such, high customer demands, despite their potential to cause stress, can also spur creativity and innovation, driving salespeople to develop innovative solutions and contribute to service innovation (Mullins et al., 2019; van Wetten et al., 2020). Rooted in J-DR theory, our model suggests that customer demandingness, perceived as a challenge demand, positively affects SIB. This effect is mediated by salesperson resilience and agility, key factors that convert customer demands into innovative outcomes. The following sections explore these mechanisms.

2.3. Customer demandingness and salesperson service innovative behavior

Customer demandingness is defined as frequent, urgent, and exacting requests requiring substantial effort and resources from service providers (Itani et al., 2020; Luu, 2021; Wang and Netemeyer, 2002). These demands pertain to product knowledge, service customization, response time, and the overall level of attention required (Lee and Yoo, 2023). Demanding customers expect high levels of service quality and exhibit a low tolerance for errors, placing considerable pressure on employees, particularly those in customer-facing roles such as salespeople (Bakker and Demerouti, 2017). A specific salesperson behavior, *service innovative behavior* (SIB) refers to activities aimed at generating, promoting, and implementing new ideas to enhance service quality and customer satisfaction (Hoang et al., 2023; Luu, 2019). Unlike creativity, this behavior entails actions and initiatives to develop and implement new ideas, methods, or processes that improve existing services or create new services. SIB is particularly important in highly competitive markets (Hoang et al., 2023; Monica Hu et al., 2009), where differentiation through innovative services can be a key driver of customer loyalty and business growth (Schiefer et al., 2024).

Creativity is vital for service industries, allowing firms to offer innovative solutions that boost customer satisfaction and loyalty (Lievens and Blažević, 2021). Organizational creativity results from the interaction of individual motivation and contextual conditions across multiple levels. Rather than relying on isolated factors, innovation emerges when personal drivers, such as work curiosity, are supported by aligned organizational structures and environments (Chang et al., 2023; Fetrati et al., 2022). These effects are further shaped by variables such as research type and professional domain. As such, translating individual creativity into collective innovation requires coordinated goal orientations and integration of absorptive capacities (Yildiz et al., 2021). Challenging situations, such as idea rejection or resource constraints, encourage individuals to rethink established frameworks (Hu et al., 2025). Moreover, high customer demandingness prompts adaptive selling behaviors, allowing salespeople to respond flexibly to diverse needs (Krush et al., 2013). These processes collectively enhance service innovation by equipping frontline employees with creative problem-solving capabilities. In line with JD-R theory, Jaramillo et al. (2013) suggest that customer demandingness is a challenge stressor. They reveal that customer demandingness is positively related to experienced meaningfulness, job involvement, and job performance while being negatively related to felt stress. Moreover, demanding

customers drive salespeople to be more proactive, resourceful, and innovative (Bande et al., 2016; Inyang et al., 2023). Customer demandingness requires tailoring and adopting routine and standard behaviors and sales processes (Schmitz and Ganesan, 2014). Yeboah Banin et al. (2016) suggest that customer demandingness prompts salespeople to engage in proactive effort and creative extra-role behavior to respond to challenging customer needs. Therefore, we hypothesize:

H1. *Customer demandingness is positively related to service innovative behavior.*

2.4. Mediating role of salesperson resilience and agility

Salesperson resilience, defined as the capacity to recover quickly from setbacks, adapt well to change, and persist in the face of adversity, is crucial for maintaining performance in challenging sales environments (Luthans et al., 2007). Encompassing emotional strength and mental toughness, it helps sales professionals navigate the highs and lows of the sales process, manage rejection, and persist in achieving their targets. Thus, cultivating resilience may enhance both individual sales outcomes and lay the foundation for sustained service innovation.

Moreover, in today's dynamic business environment, the ability to respond flexibly and innovatively to unexpected situations has become a key driver of sales performance (Agnihotri et al., 2017). Accordingly, *salesperson agility* refers to the cognitive, behavioral, and social skills that enable sales professionals to foresee and respond to changing customer needs while keeping their sales goals in sight (Yeboah Banin et al., 2016). These skills include quick learning, strategic adaptation, and delivering innovative solutions to customer requirements (Chonko and Jones, 2005). Agile salespeople are known for their adaptability, responsiveness, and proactive approach to overcoming challenges and capitalizing on opportunities in fast-paced sales environments (Inyang et al., 2023). They are better prepared to navigate uncertainty and change, resulting in greater job satisfaction, lower stress levels, and improved performance (Dabić et al., 2021; Petermann and Zacher, 2020). Moreover, agility promotes a proactive mindset, motivating salespeople to explore new opportunities and foresee customer needs, thus boosting sales and customer loyalty (Lewis et al., 2014; Sharma et al., 2008).

The present study posits that salesperson resilience and agility mediate the link between customer demandingness and SIB, proposing that these personal resources enable salespeople to transform challenging customer interactions into opportunities for service innovation. In line with JD-R theory, customer demandingness is a kind of demand that provides salespeople opportunities for learning and personal development (Jaramillo et al., 2013). Supporting this, Crane and Searle (2016) report that exposure to challenge stressors can build resilience. Moreover, grit, a component of resilience, enables salespeople to persist through setbacks and maintain effort despite failures (Epler and Leach, 2021).

Customer demandingness poses significant challenges for salespeople. These demands can create stress and pressure, potentially undermining their ability to perform effectively (Inyang et al., 2023). However, customer demandingness can also catalyze the development of salesperson agility (Kwak et al., 2019). High levels of demandingness require salespeople to be more responsive and adaptable, often finding innovative solutions to meet specific needs and expectations, thus enhancing their agility (Jung et al., 2022; Yeboah Banin et al., 2016). Research suggests that high customer demandingness may lead to stress and role conflict. While potentially causing adverse well-being outcomes, it can also motivate salespeople to develop and apply agility skills (Agnihotri et al., 2014). When faced with challenging customer interactions, agile salespeople are more likely to engage in improvisation, adaptive selling, and proactive problem-solving to meet customer needs and achieve sales goals (Agnihotri et al., 2017; Bande and

Fernández-Ferrín, 2015).

In turn, salesperson agility and resilience as critical job resources may play key roles in driving SIB. Agility allows employees to adapt to new conditions and customer feedback swiftly, facilitating the implementation of innovative ideas (Chonko and Jones, 2005; Dabić et al., 2021). It may be a critical source of SIB, as agile salespeople are more likely to be alert to new challenges/opportunities, respond to customers, and be better positioned to leverage their decisiveness toward innovation (Chonko and Jones, 2005; Inyang et al., 2023). Thus, cultivating and leveraging salesperson agility is likely essential for navigating customer demands and driving transformative service innovation.

In addition, resilience may support SIB by enabling salespeople to recover from setbacks and persist through challenges, which is essential for navigating the trial-and-error phases of innovation (Luthans et al., 2007; Senbeto and Hon, 2020). It is the bedrock of positive transformation amid adversity and challenges (Berkes and Ross, 2016). Resilience may shape how salespeople innovate in services, using challenges as opportunities and errors as learning steps. As Agnihotri et al. (2014) note, resilient employees are adept at developing new methods when confronted with difficulties and opportunities. Thus, by enhancing and leveraging resilience, salespeople can overcome obstacles and actively drive SIB. All in all, agility and resilience may empower salespeople to experiment with new approaches, ensuring their innovations are timely and impactful. Given these arguments, we hypothesize:

H2. Salesperson resilience mediates the relationship between customer demandingness and service innovative behavior.

H3. Salesperson agility mediates the relationship between customer demandingness and service innovative behavior.

In summary, Fig. 1 elaborates on the conceptual model.

3. Research method

3.1. Study design

This study employs an explanatory sequential mixed-method approach (QUAN → qual) to assess the model in Fig. 1 (Creswell and Clark, 2018; Morgan, 1998). The initial quantitative phase establishes the direct and indirect roles of salesperson resilience and agility in driving SIB, while the subsequent qualitative phase provides detailed insights to clarify and extend these findings. Accordingly, quantitative data are collected and analyzed first, and the results are used to inform the qualitative phase. The rationale is that qualitative follow-up helps

explain or contextualize unexpected, complex, or statistically significant (or non-significant) quantitative findings that require deeper interpretation (Creswell and Clark, 2018). This design reflects calls in the literature for integrating PLS-SEM with qualitative studies to leverage the strengths of both methods and address their limitations (Kurtaliqi et al., 2024). Mixed methods are increasingly prevalent in innovation management research, particularly in innovation studies (Delgosha et al., 2022; Plantec et al., 2023; Pollok et al., 2019). Accordingly, this approach mitigates trade-offs between generalizability and contextual depth by combining large-scale quantitative analytics with in-depth qualitative insights (Shannon-Baker, 2023). Specifically, the quantitative stage provides an analytical framework for testing the model, while the qualitative interviews illuminate complex mechanisms that may be obscured in large-scale analysis. This design aligns with Creswell and Clark (2018) assertion that sequential methods allow phase one findings to guide the focused qualitative inquiry, ensuring that each stage complements the other for a more comprehensive understanding of the phenomena.

3.2. Study context

This study targets B2B salespeople in the HVAC industry because of its critical role in driving innovation and the demanding nature of this field. The global HVAC industry, which holds over 99,360 patents and received 3790 grants in 2023, highlights its commitment to innovation. Projected to grow at a CAGR of 7.5 % from 2025 to 2030, this market is propelled by the demand for energy-efficient systems, such as variable refrigerant flow (VRF) systems, that reduce energy consumption by 30–40 % compared to traditional systems (Grand View Research, 2023). HVAC systems account for 38 % of energy usage in buildings, equivalent to 12 % of final energy consumption, and are the most widely consumed service globally, particularly in the residential (32 %) and tertiary (47 %) sectors, driven by the growing demand for thermal comfort (González-Torres et al., 2022). The industry integrates with construction, energy, and manufacturing, supporting global energy-efficient systems and addressing sustainability challenges such as ozone depletion and global warming. In Türkiye, the HVAC industry has made significant contributions, involving 7592 firms and employing 505,187 individuals by 2022, representing 2.7 % of national employment. The trade volume increased by 20 % from 2019 to 2022, reaching \$11.6 billion, with exports climbing 22 % to \$6 billion (Turkish Air Conditioning Council, 2024). The HVAC industry's integration with smart home ecosystems and AI exemplifies its role in the Fourth Industrial

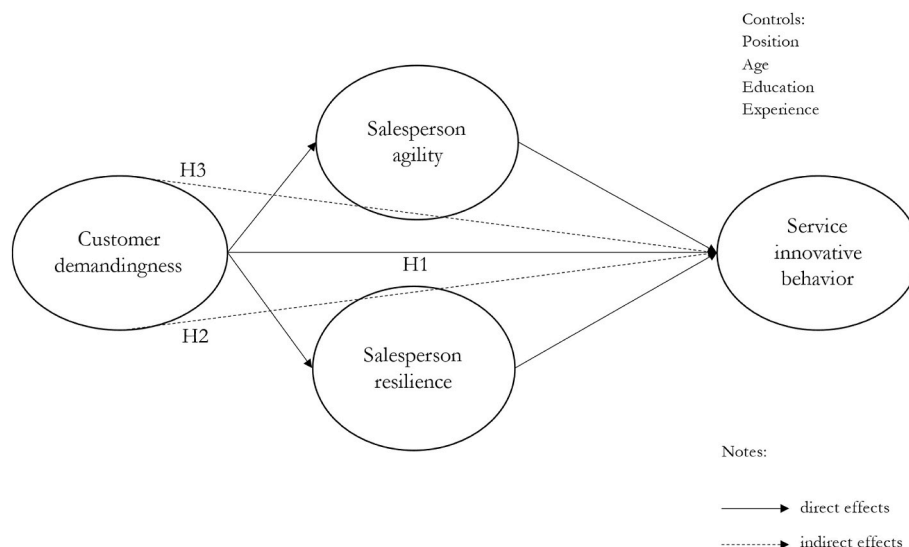


Fig. 1. Research model.

Revolution, advancing energy efficiency and sustainability worldwide. B2B sales roles, particularly in the HVAC sector, demand a high level of technical expertise and the ability to forge lasting client relationships, which are crucial for maintaining a competitive edge (Moncrief et al., 2006). HVAC sales professionals manage complex systems and must navigate rapid technological advancements and regulatory changes (Pérez-Lombard et al., 2008). The HVAC industry's competitiveness and segmentation require tailored sales strategies for different client types, underscoring the importance of understanding the specific challenges these sales professionals encounter (Moncrief et al., 2006).

3.3. Quantitative stage

3.3.1. Sample and data collection

The present study utilized an online survey with a five-point Likert scale to collect data from B2B salespeople in the HVAC industry. The survey was designed specifically for this target population to ensure relevance and clarity. One of the authors managed data collection, utilizing their extensive network within the HVAC industry to enhance response rates (Cook et al., 2000). Personalized mail invitations, which included confidentiality assurances and a promise to share study results, further encouraged participation (Dillman et al., 2014). Two reminder e-mails were sent at two-week intervals, a strategy supported by the literature for improving response rates (Fan and Yan, 2010). Data collection spanned three months with two rounds, separated by a one-month interval, to minimize common method bias (CMB) (MacKenzie and Podsakoff, 2012).

In total, 500 salespeople in the Turkish HVAC sector were contacted. Our initial sample garnered 235 responses (a 47 % response rate), which were subjected to quality checks. Excluding 11 inattentive responses ensured data integrity (Meade and Craig, 2012), resulting in a final sample of 224 for further analysis. To assess the adequacy of the sample size, priori calculations determined that 166 participants were necessary. A power analysis utilizing G-Power software (Erdfelder et al., 2009) indicated a minimum sample size of 77 with the effect size at 0.15 (medium effect), α at 0.05, and power at 0.80, which are common criteria for social sciences (Sarstedt et al., 2020). Furthermore, the inverse square root method, assuming a significance level of 5 % and a minimum path coefficient of 0.2, recommended 155 participants (Westland, 2010). Considering these methods, the sample size ($n = 224$) was considered adequate for the statistical analysis of this study. The methodology included purposive sampling, company size and market segment stratification, and geographical diversity to ensure a comprehensive and representative sample (Sarker and Al-Muaalemi, 2022). Accordingly, we collected data from companies of various sizes and market sizes throughout all the regions of Türkiye. Preliminary interviews with industry experts validated the sample's relevance and capacity to address the research questions effectively. Table 1 presents demographic information about the participants.

3.3.2. Measures

The survey was organized into three sections, developed through a systematic review of existing literature to ensure relevance and clarity. First, a pilot survey was administered with experts to assess its legibility and accuracy (Kent, 2007). In this pilot test, a panel of five practitioners and five marketing professors reviewed the survey to improve its clarity. The criteria for selecting practitioners included having at least five years of experience in B2B sales, while the criteria for selecting marketing professors included a record of publications in B2B sales and knowledge of quantitative data collection through surveys. Their feedback prompted revisions in the survey design to eliminate potential ambiguities. For instance, we added a question about the position to the survey and included managers who frequently visit customers as part of the sales activity.

For linguistic accuracy, the survey items were translated into Turkish and refined using an iterative back-translation process (Douglas and

Table 1

Demographic information ($n = 224$).

Age		Education	
18–30	27	Primary and high school	22
31–45	120	Associate degree	19
46 or above	77	Undergraduate	133
		Graduate	50
Gender			
Male			117
Female			47
Experience (years)		Customer Industry	
1–5	28	Automotive, technology and defense	35
6–10	27	Construction, machinery & energy	64
11–15	46	Chemistry and medical	50
15 or above	123	Food & beverage	15
		Finance and education	42
		Others	18
Number of employees		Role	
1–49	97	Specialist	112
250–499	61	Division manager	48
50–249	20	Department manager	25
500 or above	46	Top manager	39

Craig, 2007). Two bilingual researchers carried out this process to ensure that the Turkish version accurately reflected the English version, incorporating feedback from pretest respondents to finalize the survey. The study adapted well-established scales to the salesperson setting to ensure the reliability and validity of the constructs. The customer demandingness scale was adapted from Wang and Netemeyer (2002), providing a robust measure for evaluating the challenges posed by customers. The resilience scale, sourced from Al-Hawari et al. (2020), effectively captured the ability of salespeople to recover from setbacks. For measuring agility, we used the scale developed by Inyang et al. (2023), who adapted from Chonko and Jones (2005), which assesses how quickly and efficiently salespeople adapt to changes. Lastly, the SIB scale, taken from Monica Hu et al. (2009), measured salespeople's tendency to develop and implement new ideas in service delivery. This scale was originally developed for the hotel and hospitality sector and includes several items that indicate the innovativeness of the hotels. In our study, we focus specifically on measuring salesperson behaviors. Consequently, we excluded eight items designed for this sector.

The control variables measured in this study include position, age, education, and experience. In addition to resilience and agility, salespeople's individual characteristics may influence their SIB. In line with prior literature (e.g., Alqhaiwi et al., 2023; Hoang et al., 2023; Luu, 2019), we include job position, education, age, and experience as control variables because each of these factors can significantly influence both salesperson and SIB, independent of the primary variables under investigation. Job position reflects an employee's hierarchical level and responsibility, which can affect access to resources and decision-making authority crucial for innovation (Collins and Reutzel, 2017). Education indicates an individual's exposure to new ideas, critical thinking skills, and formal training, all of which are important for creative problem-solving (Seclen-Luna and Alvarez-Salazar, 2023). Age and experience, on the other hand, capture both the depth of industry knowledge and the propensity to either adhere to established practices or embrace new approaches. Appendix I shows the scales, measurement items, and their respective loadings.

3.3.3. Analytical methods

This study utilized Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the hypotheses, following rigorous contemporary standards (Hair et al., 2021a; Shmueli et al., 2016). PLS-SEM was selected for its capability to manage complex models with multiple constructs and indicators, making it suitable for exploratory

research where theory is less developed (Hair et al., 2021b; Sarstedt et al., 2020). Unlike covariance-based SEM, PLS-SEM does not require strict normality assumptions, is better at predicting dependent variables, and offers greater flexibility regarding data requirements and model complexity (Hair et al., 2021b; Sarstedt et al., 2020; Thongpapanl et al., 2018). PLS-SEM has gained recognition in fields such as innovation due to its capacity to handle complex interrelationships in attitudinal and behavioral theories (Freije et al., 2022; Seclen-Luna et al., 2024). In the context of innovation, PLS-SEM is particularly effective in examining the intricate relationships and pathways that drive innovation processes, making it a suitable tool for understanding the variables' impact on innovative outcomes (Freije et al., 2022; Thongpapanl et al., 2018).

We employed the *SeminR* package, which offers open-source packages, a user-friendly interface, and comprehensive functionalities for implementing PLS-SEM techniques efficiently, including bootstrapping for significance testing and computation of path coefficients, loadings, and robustness analyses (Hair et al., 2021b; Ray et al., 2021). Our analysis adhered to procedures outlined by Legate et al. (2023), ensuring a systematic approach by validating measurement models before testing structural relationships.

3.3.4. Evaluation of measurement model

First, we calculated the composite reliability values, which exceeded the recommended threshold of 0.70 (see Appendix I), confirming the internal consistency and reliability of the measurement items (Legate et al., 2023). Each construct's average variance extracted (AVE) also surpassed the suggested level of 0.50, indicating strong convergent validity. We applied the heterotrait-monotrait (HTMT) criterion outlined by Henseler et al. (2015) to assess discriminant validity. By comparing the HTMT scores to the recommended threshold of 0.85, we found that all HTMT values were below this threshold, thereby confirming the discriminant validity of the measurement model. These results ensure that our measurement model effectively captures the constructs intended for analysis and distinguishes them from one another. Table 2 provides the reliability and validity analysis results.

The correlation analysis reveals several significant relationships among the constructs. Customer demandingness is positively correlated with salesperson resilience ($r = 0.53, p < .01$), salesperson agility ($r = 0.48, p < .01$), and SIB ($r = 0.35, p < .01$). Salesperson resilience shows positive correlations with salesperson agility ($r = 0.56, p < .01$), SIB ($r = 0.50, p < .01$), and position ($r = 0.19, p < .01$). Additionally, salesperson agility is positively correlated with SIB ($r = 0.60, p < .01$). SIB is positively correlated with position ($r = 0.33, p < .01$) and experience ($r = 0.17, p < .01$) but negatively correlated with education ($r = -0.15, p < .05$). Position is positively correlated with age ($r = 0.17, p < .05$) and experience ($r = 0.31, p < .01$), but negatively correlated with education ($r = -0.16, p < .05$). Age is positively correlated with experience ($r = 0.69, p < .01$) and negatively correlated with education ($r = -0.26, p < .01$). Lastly, education is negatively correlated with experience ($r = -0.32, p < .01$).

The MVN package in R was used to assess data normality, with the Mardia test employed for multivariate normality (Korkmaz et al., 2014). Skewness values ranged from 0.001 to -1.621 , and kurtosis values

ranged from 0.004 to 5.440. According to Kline (2023), the data can be considered normal since skewness and kurtosis fall within acceptable thresholds (≤ 2 and ≤ 7 , respectively). However, kurtosis exceeded the thresholds of ± 3 suggested by Hair et al. (2021b). The Mardia test indicated a lack of multivariate normality (Mardia skewness = 494.794 and $p = 0.00$, Mardia kurtosis = 9.663, $p = 0.00$). Nevertheless, PLS-SEM was used for analysis as it does not make any normality assumptions, with additional steps taken to address endogeneity bias. Table 3 provides the mean, standard deviation, skewness, and kurtosis values, as well as correlations between the constructs utilized in the present study.

Next, endogeneity bias was carefully assessed in this study, as addressing it is crucial in regression-based methods such as PLS-SEM (Hult et al., 2018). Endogeneity occurs when a predictor construct correlates with the error term of the associated dependent construct, which can lead to inaccurate results (Park and Gupta, 2012). The origins of endogeneity can vary, often arising from omitted constructs that correlate with predictor and dependent constructs (Ebbes et al., 2022). To mitigate this issue, the original model incorporated a control variable approach with covariates to reduce potential endogeneity (Hult et al., 2018; Isabel et al., 2023). Additionally, an instrumental variable-free ex-post analysis using the Gaussian copula approach was conducted to further address potential endogeneity (Park and Gupta, 2012).

To assess the potential endogeneity in our model, we first conducted the Kolmogorov-Smirnov test with Lilliefors correction using the *KSCorrect* package in R. The composite scores of SIB were tested, revealing a p-value below 0.05, which necessitated the calculation of Gaussian copulas and their regression against SIB. The results indicate that none of the Gaussian copulas—CD ($p = 0.361$), SR ($p = 0.908$), and SA ($p = 0.779$)—are statistically significant ($p > .05$). We further examined all other combinations of Gaussian copulas in the model, with p-values ranging from 0.293 to 0.907, and found none to be significant. Finally, the adjusted R^2 values remained stable between 0.441 and 0.446, with residual standard errors of about 0.74. These findings suggest that endogeneity is not a concern in our model (Hult et al., 2018).

Moreover, we took steps to address potential issues with CMB, as Rodríguez-Ardura and Meseguer-Artola (2020) recommended. Survey questions were carefully formulated to disperse similar items across the questionnaire. We also separated dependent and independent variables to decrease diagnosticity of the earlier answers, which is called as psychological separation (MacKenzie and Podsakoff, 2012). We also ensured respondent anonymity and conducting a pretest to verify clarity and comprehensibility. Respondents were assured that there were no predetermined correct answers and were instructed to base their responses on knowledge rather than personal sentiments. Moreover, data collection spanned three months, including a one-month pause in data collection to address one of the common sources of CMB—forced participation—identified by MacKenzie and Podsakoff (2012). Following that, non-response bias was tested by comparing early and late-wave participants on demographic variables (Armstrong and Overton, 1977). Student's t-tests revealed no significant differences, indicating that non-response bias did not affect the results (Dillman et al., 2014). To further mitigate CMB, we employed ex-post statistical remedies. Harman's single-factor test revealed that the cumulative variance extracted by a single factor accounted for only 40.33 % of the total variance, well below the suggested threshold (MacKenzie and Podsakoff, 2012). Given its limitations (Baumgartner et al., 2021), we conducted additional analyses. First, we conducted a full collinearity diagnosis using VIF values. The results showed that all values were under the threshold of 3, as Hair et al. (2021a) recommended, ensuring that multicollinearity was not a concern. These results show that CMB is not an issue in this study, as the VIF values of the constructs (customer demandingness = 1.52; salesperson resilience = 1.80; salesperson agility = 1.58) are below the threshold. Then, we applied the random marker variable approach (Kock, 2015), regressing all variables to a marker variable generated using Excel's RAND() function. The results

Table 2
Reliability and validity analysis.

Construct	CR	AVE	HTMT			
			I	II	III	IV
(I) CD	0.84	0.68				
(II) SR	0.86	0.65	0.63			
(III) SA	0.89	0.56	0.56	0.64		
(IV) SIB	0.89	0.65	0.41	0.57	0.67	

Notes: CD: Customer demandingness, SR: Salesperson resilience, SA: Salesperson agility.
SIB: Service innovative behavior.

Table 3

Descriptives and correlation analysis results.

Construct	Mean	Std. dev.	Skewness	Kurtosis	I	II	III	IV	V	VI	VII
(I) CD	4.42	0.61	−1.600	4.715							
(II) SR	4.47	0.57	−1.621	5.441	0.53**						
(III) SA	4.27	0.59	−1.120	3.344	0.48**	0.56**					
(IV) SIB	4.13	0.71	−0.812	1.070	0.35**	0.50**	0.60**				
(V) Position	1.96	1.15	0.772	−0.926	0.13	0.19**	0.10	0.33**			
(VI) Age	2.24	0.68	0.005	−0.0342	0.01	−0.08	−0.04	0.04	0.17*		
(VII) Education	1.21	0.41	−0.0972	0.837	0.01	−0.01	−0.003	−0.15*	−0.16*	−0.26**	
(VIII) Experience	3.18	1.07	−0.0971	−0.474	0.09	0.01	0.123	0.17**	0.31**	0.69**	−0.32**

Notes: CD: Customer demandingness, SR: Salesperson resilience, SA: Salesperson agility, SIB: Service innovative behavior.

*** significant at $p < .001$ level; ** significant at $p < .01$ level; * significant at $p < .05$ level; ns non-significant.

showed that none of the variance inflation factor (VIF) values exceeded the threshold of 3, with values ranging from 1.14 to 2.07. With the required reliability and validity confirmed, we proceeded to test the hypotheses.

3.3.5. Structural model results

The structural model analysis demonstrates that customer demandingness significantly positively influences salesperson resilience ($\beta = 0.54$, $t = 6.113$, CI [0.352, 0.687]) and salesperson agility ($\beta = 0.49$, $t = 5.758$, CI [0.325, 0.652]). Additionally, salesperson resilience positively affects SIB ($\beta = 0.20$, $t = 2.465$, CI [0.044, 0.360]), and salesperson agility has a strong positive effect on SIB ($\beta = 0.48$, $t = 7.059$, CI [0.342, 0.607]). Thus, while customer demandingness boosts resilience and agility, agility and resilience directly influence SIB. However, customer demandingness does not directly affect SIB ($\beta = -0.02$, $t = -0.256$, CI [−0.132, 0.104]), refuting hypothesis H1. Given the significant effect on behavior ($\beta = 0.33$, $t = 3.618$, CI [0.350, 0.687]), our results indicate that mediating mechanisms exist between customer demandingness and SIB among salespeople.

Next, the mediation analysis indicates that salesperson resilience significantly mediates the relationship between customer demandingness and SIB, with an indirect effect of $\beta = 0.13$ ($t = 2.465$, CI [0.040, 0.249]), supporting H2. Additionally, salesperson agility significantly mediates this relationship, with an indirect effect of $\beta = 0.23$ ($t = 4.027$, CI [0.133, 0.356]), supporting H3. Thus, both resilience and agility play crucial roles in translating the impact of customer demandingness into SIB. Table 4 shows the mediation results, and Fig. 2 shows the direct, total, and indirect effects, path coefficients, and significance levels of the whole model.

3.3.6. Robustness checks

In the final phase of our analysis, we evaluated the model's

predictive power using the PLS_Predict function from the SEMinR package and CVPAT functions (Sharma et al., 2023). We began by examining the distribution of predictive errors, which demonstrated a symmetrical pattern. To assess the accuracy of our predictions, we compared the RMSE values. Fig. 3 illustrates the distribution of predictive errors for the SIB items.

Benchmark analysis of RMSE values indicated that the prediction errors from our PLS model were consistently smaller than those from the LM benchmark model. This comparison confirms that our model exhibits high predictive power, effectively predicting SIB more accurately than the naïve linear benchmark model (Sharma et al., 2023). Moreover, a comparison of PLS-SEM predictions with naïve indicator-averages (IA) benchmarks revealed significantly lower loss for SIB = 0.243, $p = 0.000$) and overall predictions (0.053, $p = 0.001$). Similarly, PLS-SEM outperformed linear models, with lower average loss differences for SIB (0.170, $p = 0.000$) and overall (0.025, $p = 0.001$). These results demonstrate the model's strong predictive validity. Accordingly, Table 5 shows the PLS_Predict and CVPAT benchmark analysis results.

3.4. Qualitative stage

While quantitative analysis provided valuable theoretical contributions, further clarification is needed to understand the pathways specific to the HVAC sector through which customer demandingness, mediated by salesperson resilience and agility, influences SIB. Despite identifying a statistically significant relationship between these variables, the underlying processes by which these relationships occur entail further exploration. Moreover, we hypothesized a direct relationship between customer demandingness and SIB in the quantitative stage, yet our findings reveal an indirect connection between these variables.

Therefore, we conducted qualitative interviews to connect the dots better, which complemented and triangulated the quantitative results

Table 4

Structural model results.

Hypothesis	Path	β	T Stat.	LLCI	ULCI	R ²	f ²	Support
Direct effects								
H1	CD - > SIB	−0.02ns	−0.256	−0.132	0.104		0.00	No
	CD - > SR	0.54***	6.113	0.352	0.687	0.29	0.40	Yes
	CD - > SA	0.49***	5.758	0.325	0.652	0.24	0.31	Yes
	SR - > SIB	0.20***	2.465	0.044	0.360	0.46	0.06	Yes
	SA - > SIB	0.48***	7.059	0.342	0.607		0.24	Yes
	Position - > SIB	0.22***	4.282	0.121	0.324		0.07	
	Age - > SIB	0.04ns	0.578	−0.096	0.193		0.00	
	Education - > SIB	0.06ns	1.119	−0.045	0.154		0.01	
	Experience - > SIB	−0.01ns	−0.088	−0.167	0.146		0.00	
Total effects								
	CD - > SIB	0.33***	3.618	0.350	0.687			
Indirect effects								
H2	CD - > SR - > SIB	0.13**	2.465	0.040	0.249			Yes
H3	CD - > SA - > SIB	0.23***	4.027	0.133	0.356			Yes

Notes: CD: Customer demandingness, SR: Salesperson resilience, SA: Salesperson agility.

SIB: Service innovative behavior.

*** significant at $p < .001$ level; ** significant at $p < .01$ level; * significant at $p < .05$ level; ns non-significant.

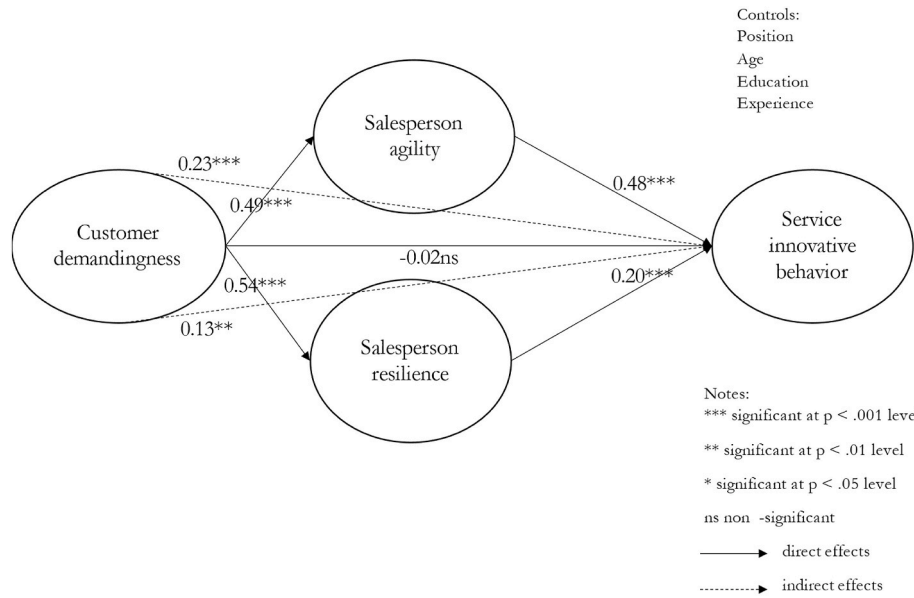


Fig. 2. Measurement and structural model results.

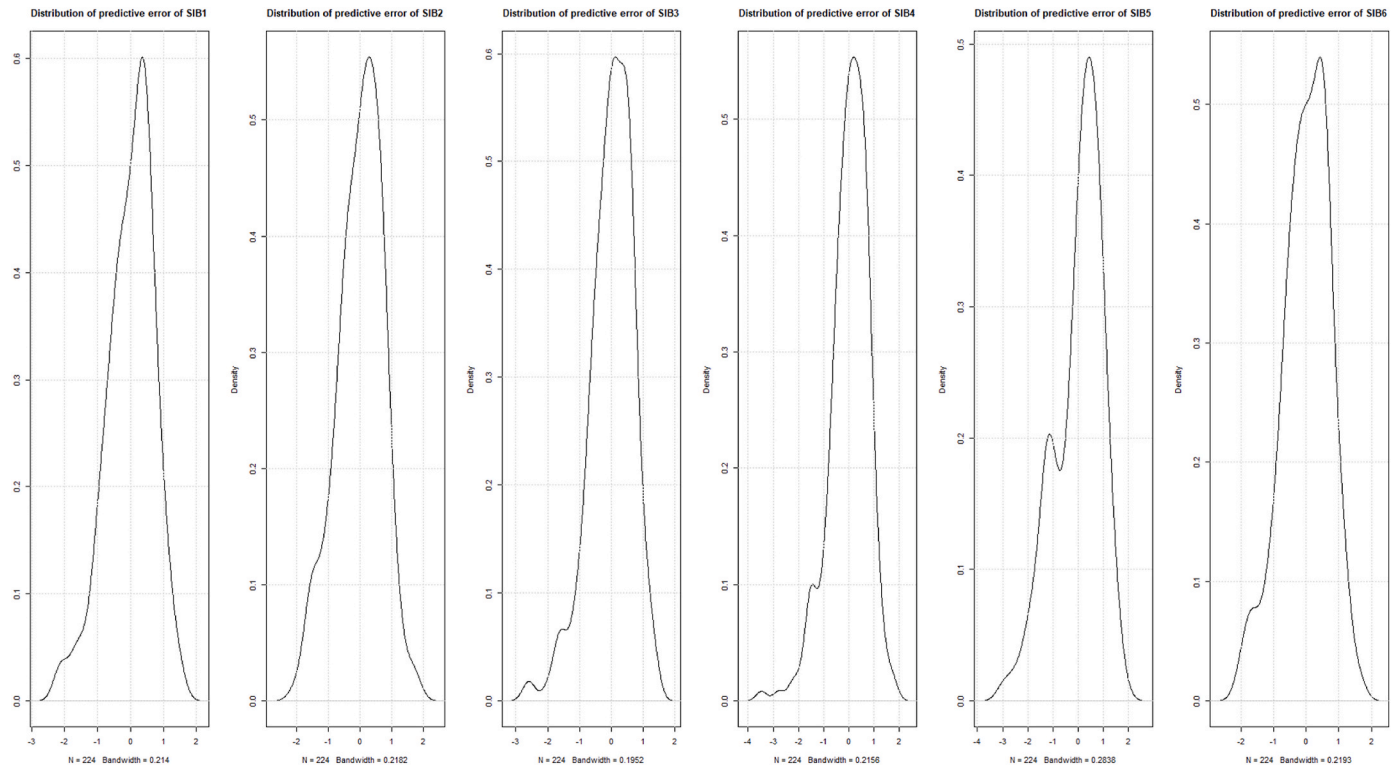


Fig. 3. Distribution of predictive errors for service innovative behavior items.

(Creswell and Clark, 2018). The insights from the qualitative stage helped refine and explain the complex relationships in the PLS-SEM model (Kurtaliqi et al., 2024), offering a deeper understanding of the factors influencing SIB in response to customer demands.

3.4.1. Sampling, data collection, analysis

We conducted interviews with ten sales professionals who had previously completed the quantitative survey to enable a direct comparison between their narrative accounts and statistical responses (Morse & Niehaus, 2009). Participants were purposively selected to reflect variation in age, gender, role, and seniority (Creswell and Clark, 2018;

Morgan, 1998). Selection was guided by key variables identified in the quantitative phase to ensure maximum variation and to examine potential explanations for observed patterns (Tashakkori and Teddlie, 2010). Semi-structured interviews followed a protocol of open-ended questions (See Appendix II), designed to align with the hypotheses from the quantitative stage, thereby enabling consistency while allowing for deeper exploration (Kvale and Brinkmann, 2009). Interviews, lasting between 20 and 70 min, generated detailed data on participants' perspectives, which were transcribed, translated, and cross-verified by independent reviewers for reliability (Korstjens and Moser, 2018). We structured our interviews to preserve openness while remaining

Table 5
PLS Predict and CVPAT benchmark analysis results.

		SIB1	SIB2	SIB3	SIB4	SIB5	SIB6
PLS	RMSE	0.709	0.714	0.683	0.773	0.945	0.718
	MAE	0.565	0.573	0.526	0.587	0.758	0.575
LM	RMSE	0.746	0.741	0.718	0.796	0.961	0.779
	MAE	0.592	0.581	0.546	0.589	0.774	0.597
Comparison		Construct	PLS loss	IA loss	Ave. loss difference		p
PLS-SEM vs. Indicator average (IA)	SIB	0.771	1.014	0.243	0.000		
	Overall	0.771	0.824	0.053	0.001		
PLS-SEM vs. Linear model (LM)	SIB	0.852	1.022	0.170	0.000		
	Overall	0.851	0.876	0.025	0.000		

analytically grounded. Initial questions were intentionally broad (cf. Kurtaliqui et al., 2024), inviting participants to describe their experiences on their own terms before any reference to our quantitative model. In cases where informants introduced experiences beyond the interview protocol, the structure was adapted to accommodate these contributions, enabling the development of relevant and unanticipated themes (cf. Plantec et al., 2023; Pollok et al., 2019). Sensitizing concepts from the quantitative phase served as analytical tools rather than question templates (Creswell and Clark, 2018), allowing the inquiry to evolve organically. We adopted a funneling approach, moving from general narratives to more specific themes as interviews progressed. Throughout the interviews, we employed non-leading probes to elicit elaboration and incorporated member checking to validate our readings (Korstjens and Moser, 2018).

We employed an abductive (Dubois and Gadde, 2002) (aka. in vivo) (Andersen and Kragh, 2010) approach in data analysis, which allowed for an iterative interaction between data and theory. Rooted in the pragmatic paradigm, this approach supports methodological adaptability and emphasizes the utility of abductive reasoning in addressing multifaceted research questions (Morgan, 1998). Therefore, abductive data analysis enables the refinement of interpretations through continuous engagement with both quantitative patterns and qualitative insights (Creswell and Clark, 2018). Unlike a grounded approach, this method permits theoretical propositions to inform the analysis (Andersen and Kragh, 2010). Coding and analysis were conducted by two researchers to enhance validity, providing nuanced insights into the contextual factors influencing the findings (Korstjens and Moser, 2018). Details of the coding process are provided in Appendix III.

3.4.2. Findings

The qualitative findings corroborate the quantitative results and further clarify how customers in the HVAC sector express demandingness. Customers expect rapid responses, technical expertise, and tailored service, with a reduced tolerance for delays, particularly in deliveries. As Participant 4 noted: “Some customers behave as if we only serve them. He sends an e-mail, calls 10 min later, says you did not reply.” These expectations not only shape service standards but also introduce emotional strain for providers who must navigate increased pressures in daily interactions.

The qualitative findings reveal that customer demandingness is frequently “conveyed through distributors” (Participant 1), who absorb end-user pressure, especially during delivery delays or material issues. This situation often “escalates upstream” (Participant 1), occasionally leading to tense interactions. Customers were described as “expecting suppliers to assume full responsibility for technical decisions” (Participant 2), bypassing self-service tools and seeking direct support, “even during off-hours” (Participant 5). Such expectations are intensified by site-related constraints and delays, highlighting the operational strain placed on suppliers. As one participant noted:

Sometimes customers have very urgent jobs, we work on construction sites, we work with construction. My customer says, for

example, I’m going to cover the suspended ceiling, I need to put this [HVAC] material there.

While customer demandingness presents operational stressors, it also acts as a catalyst for improvements in innovation and sales operations. Participant 7 noted, “We were challenged by the complexity of the customers, but in the end, we found a stronger solution,” capturing the productive potential of such interactions. However, the interviews also suggest that demandingness alone does not prompt innovation; it is the salesperson’s strategic adaptation that converts these pressures into value-generating actions. Respondents described adopting a service-oriented, “customer is always right posture” (Participant 3). This stance is characterized by “rapid response and clarity, particularly when customers are confused or dissatisfied” (Participant 6). Technical reassurance and effective problem-solving emerged as central to sustaining trust. As such, Participant 2 explained, “If we can clearly understand the customer’s demand, we can respond accordingly,” illustrating the importance of understanding customer needs to enable proactive responses. This finding suggests that individual capabilities, such as resilience and agility, mediate the relationship between demandingness and innovative behavior.

At this point, resilience emerges as a key mediator that enables salespeople to sustain performance under pressure while managing emotionally demanding interactions. Resilience in client-facing roles often involves “managing emotional responses and setting boundaries” (Participant 1) under pressure. Early-stage engagements may involve asymmetries in perceived authority or expertise, “requiring persistence despite imbalances even if the salesperson becomes angry” (Participant 2). One strategy involves reframing stress as an “expected component of the role” (Participant 7), rather than a disruption. Participants described developing emotional stamina and maintaining constant, constructive communication to meet customer demands. Accordingly, Participant 1 explained, “We try not to reflect the problem to the other side ... we are also positive people,” highlighting the strategic use of empathy and positivity. This approach was echoed by Participant 9, who emphasized that “positive interventions” not only preserve customer trust but also support psychological well-being. Frequent, reassuring updates were used to stabilize client relationships, particularly in crises. As such, Participant 10 noted:

With the customer relationship, that is, informing the customer in the most intensive way possible, and while informing, that is, informing in a positive way, not about their problems, but in a positive way ... We constantly provide positive feedback based on the psychology of both ourselves and the customer. (Participant 10)

Customer demands can also serve as a key driver of salesperson agility. As such, Participant 1 explained, “We prioritize as much as possible. In other words, when there is a fast demand, we prioritize production for customers with stock shortages,” demonstrating how customer expectations necessitate operational adjustments to ensure satisfaction and loyalty. As noted by Participant 8, the salespeople try to avoid customers being harmed. Salespeople, with personal responsibility and customer orientation, can go beyond formal job duties to ensure customer satisfaction:

If it’s a small item, we pick it up and drop it off ourselves. Just so that the customer is not harmed ... I make deliveries on Saturdays even though I am normally out of working hours, I take it and put it in my vehicle so that the customer is not harmed, and we are satisfied with this. In fact, the customer’s satisfaction also pleases us. It allows us to make more sales and adapt more to our work. (Participant 8)

Participant 5 further exemplifies this: “We try to reduce transit time as much as possible by converting containerized shipments to truck road. This is what we call intermodal transportation,” showcasing logistical flexibility to expedite delivery. These examples illustrate how agility mediates the link between customer demandingness and innovative service

behaviors, as identified in the quantitative findings. This interplay between agility and resilience highlights their combined importance in transforming customer demandingness into opportunities for service innovation.

Salespeople frequently encounter challenges tied to customer dissatisfaction, but these interactions often serve as catalysts for innovation. Participant 10 shared, *“Customers’ demanding nature keeps us on our toes and helps us come up with new ideas,”* illustrating how resilience extends beyond managing stress to generating creative solutions. This supports the quantitative finding that resilience enhances innovative behaviors when addressing demanding customers. Agility complements resilience in these contexts, enabling salespeople to adapt dynamically and transform challenges into opportunities for problem-solving. For example, Participant 6 explained, *“I realized that this was not going to work ... I installed the selection program on the customer’s computer and showed him how to select the device,”* demonstrating a proactive response that not only resolved the immediate issue but also empowered the customer for future interactions.

Moreover, our qualitative findings document that customer demands often drive innovations at both individual and organizational levels. Respondents noted that such demands frequently inspire broader changes, as exemplified by Participant 10, who said, *“We communicate [customer feedback] to the factory, and our R&D is actually improved in this way.”* This point reflects how insights from frontline interactions feed into organizational processes, enhancing research and development efforts. In addition, an institutional training structure was established to close the gap in sectoral knowledge. *“We have established an institution called the academy, and we have recurrent training every year”* (Participant 6).

Finally, we discussed the effect of control variables on SIB, with participants unanimously stating that age, experience, and education do not influence innovation outcomes. As Participant 1 noted, *“More important than age and experience are the skills you bring to the table.”* Similarly, Participant 2 highlighted that while initial perceptions might differ because of young age, *“over time, as they see the solutions I offer, their approach changes.”* Participant 7 reinforced this view, stating, *“So it’s not the age that drives innovation, it’s the solution.”* However, participants emphasized that job position creates opportunities, as Participant 10 remarked, *“When you have more authority, you find more solutions.”* These insights suggest that service innovation in sales roles is shaped more by problem-solving capabilities and organizational position than by demographic factors.

To sum up, the qualitative stage findings elaborate on how customer demandingness operates within HVAC sales contexts, complementing the statistical associations observed in the survey. Interviewees consistently described expectations for speed, precision, and responsiveness, with pressure often passed indirectly via distributors. This pressure triggered both strain and adaptive behaviors, but innovation occurred only when salespeople displayed resilience and agility. Participants recounted reframing challenges into action, improvising logistics, maintaining proactive communication, and even making personal deliveries. These micro-level adjustments demonstrate how agility facilitates operational shifts, while resilience maintains customer trust. Importantly, respondents identified relational strategies, such as positive updates and timely technical support, as essential for navigating high-pressure interactions. Contrary to assumptions about demographics, interviewees emphasized that practical know-how and internal authority were more consequential than age or formal education. Moreover, they highlighted how their actions fed back into broader firm learning, shaping R&D agendas and training protocols. In this way, the qualitative data adds depth to the survey results by tracing how individual responses link to organizational adaptation.

4. Discussion and conclusion

4.1. Theoretical implications

This study aimed to advance the literature on service innovation in B2B contexts by unpacking how customer demandingness influences salespeople’s SIB through the mediating roles of resilience and agility. While prior research has acknowledged the importance of frontline employees in creativity (Hu et al., 2025) and innovation processes (Hoang et al., 2023; Zoltners et al., 2022), our findings contribute to a more nuanced understanding of the psychological and behavioral mechanisms that enable salespeople to transform customer pressure into innovation. Specifically, our study responds to the call for deeper exploration of individual-level enablers of innovation in complex service environments (Ahmad et al., 2024; Ohiomah et al., 2020).

Salespeople play a crucial role in service innovation by engaging with customers, representing their needs, and promoting new offerings (Epler and Leach, 2021). However, research on the mechanisms driving SIB in sales remains limited. To this end, grounded in an explanatory sequential approach, we explored the mediating role of salesperson resilience and agility to understand how salespeople adapt in demanding customer environments. First, we conducted a PLS-SEM analysis of 224 survey responses from B2B salespeople in Türkiye’s HVAC industry. Accordingly, our findings reveal that customer demandingness positively impacts salesperson resilience. In line with this finding, prior research suggests that challenging work conditions can enhance resilience by necessitating the development of coping strategies and problem-solving skills (Crane and Searle, 2016; Luu, 2021). Similarly, demanding situations such as idea rejection place employees in a kind of incubation period, which helps them develop coping mechanisms in innovative processes (Hu et al., 2025). This finding suggests that exposure to demanding customers prompts salespeople to build resilience to manage pressure and meet high expectations (Agnihotri et al., 2014; Jaramillo et al., 2013). The persistent demands may improve their ability to recover from setbacks, stay motivated, and maintain emotional stability (Schilbach et al., 2021).

Conversely, the findings of Ahmad et al. (2022) show that customer demandingness can negatively affect innovation implementation due to emotional exhaustion. This situation highlights the significance of the mechanisms and potential opposing effects of customer demandingness on innovation (Ahmad et al., 2024). For example, Jung et al. (2022) demonstrate that customer demands can lead to hindrance appraisal, associated with higher turnover levels when mediated by job stress. These findings highlight the potential positive and negative outcomes of customer demandingness and the importance of mediating mechanisms that link it to work outcomes.

Moreover, our study highlights that customer demandingness positively influences salesperson agility, which aligns with Kwak et al. (2019), who found that challenging work conditions enhance employees’ adaptability and responsiveness. Accordingly, it indicates that salespeople exposed to high customer demands are compelled to develop the agility to quickly adjust their strategies and interactions to meet diverse customer needs (Agnihotri et al., 2017). The pressure to adapt rapidly in high-demand environments likely promotes a more agile approach to sales and service delivery (Jung et al., 2022; Yeboah Banin et al., 2016). However, this finding contrasts with some research suggesting that excessive demands can overwhelm employees and hinder their ability to be agile (Matthews and Rutherford, 2020; Petermann and Zacher, 2020). This discrepancy may arise because the impact of demandingness on agility depends on how salespeople perceive these demands, whether as challenges or threats. In supportive organizational settings, salespeople may view demanding situations as opportunities to enhance their agility (Agnihotri et al., 2017). The variation in findings could also stem from differences in how agility is defined and measured (Talaie-Khoei et al., 2024) or from contextual factors such as industry specifics and market volatility (Inyang et al., 2023; Petermann and

Zacher, 2020).

Additionally, our analysis indicates that both resilience and agility positively influence SIB. Resilient salespeople, equipped to handle setbacks and uncertainties, will likely engage in innovative behaviors. This finding supports previous ones that resilience provides a foundation for exploring new ideas (Berkes and Ross, 2016; Senbeto and Hon, 2020). Salesperson agility also significantly impacts SIB, even more than resilience. Agile salespeople excel at spotting and seizing new opportunities, aligning with the view that agility fosters effective innovation (Inyang et al., 2023). Nevertheless, other studies caution that high agility may lead to hasty decisions and superficial innovations, highlighting potential variations in how agility and innovation are operationalized or contextualized (Talaie-Khoei et al., 2024).

Surprisingly, our study reveals that customer demandingness does not directly affect SIB, highlighting the mediating roles of salesperson resilience and agility. This result suggests that resilience and agility enable salespeople to transform customer demands into opportunities for innovation. However, this finding contrasts with research suggesting that high demands can hinder innovation due to stress and reduced cognitive resources (Ulrich and Yeung, 2019). The discrepancy may arise because resilient and agile salespeople manage stress better and preserve cognitive resources, facilitating their innovative capacity (Al-Hawari et al., 2020; Ceschi et al., 2017; Schilbach et al., 2021).

Moving forward, our mediation analysis reveals that salesperson resilience and agility mediate the relationship between customer demandingness and SIB. This aligns with the JD-R model (Bakker and Demerouti, 2017), which suggests that job resources, such as resilience and agility, can mitigate the negative impacts of job demands and transform them into positive outcomes. Building on above-mentioned findings, semi-structured interviews provided insight into how customer demandingness shapes sales behavior in HVAC contexts. Participants consistently described expectations for speed, precision, and responsiveness, often transmitted indirectly through distributors. These pressures triggered both strain and adaptive responses, but innovation emerged only when salespeople demonstrated resilience and agility. Respondents recounted reframing challenges into action, improvising logistics, and maintaining proactive communication, including personal deliveries and timely technical support. Agility enabled rapid adjustments such as prioritizing urgent orders, while resilience helped manage stress and sustain customer trust. These capabilities not only improved individual performance but also informed broader organizational processes, including R&D. Participants emphasized that demanding interactions could lead to innovation when navigated strategically, with relational strategies playing a central role in maintaining engagement under pressure.

Except for position, none of the control variables influenced SIB, aligning with prior research on education, age, and experience (Alqhaiwi et al., 2023; Hoang et al., 2023). Qualitative interviews further supported this finding, as all participants agreed that these factors alone do not drive innovation without the necessary capabilities. Instead, they emphasized that skills and problem-solving abilities are more critical than demographic characteristics. However, our findings conflict with Seclen-Luna and Alvarez-Salazar (2023) that show education is positively related to innovation activities and, ultimately, service innovation. Finally, job position was noted as a factor that enables innovative action by providing greater autonomy and decision-making authority, creating opportunities for salespeople to implement new service solutions. Moreover, the interviewees in the qualitative stage challenged demographic assumptions by stressing that hands-on expertise and internal influence mattered more than age or formal credentials. They also described how their individual actions contributed to company-wide learning, influencing research priorities and training programs.

Based on its findings, this study contributes to service innovation and sales literature by offering a novel perspective on how frontline salespeople in B2B contexts transform customer demandingness into service

innovation through the mediating roles of resilience and agility. While prior research has emphasized the role of organizational structures, digital technologies, and managerial strategies in driving innovation (Aker et al., 2023; Xie et al., 2023), our findings foreground the micro-level behavioral mechanisms that enable innovation at the customer interface. Specifically, we extend the conversation on individual-level enablers of creativity (e.g., Hu et al., 2025) and innovation (e.g., Ahmad et al., 2024; Ohiomah et al., 2020) by showing how resilience allows salespeople to recover from repeated rejections and maintain motivation, while agility enables them to adapt quickly to evolving customer needs and co-create novel service solutions. This dual-pathway model challenges the traditional view of customer demandingness as a purely negative job demand (Dormann and Zapf, 2004; Zhang et al., 2016) and instead positions it as a potential catalyst for innovation when mediated by the right personal capabilities.

Finally, this study extends the JD-R theory by refining the concept of job demands and identifies customer demandingness as a distinct challenge arising from customer interactions. The extent to which this demand is beneficial depends on mediating factors, particularly salespeople's resilience and agility. By examining how these traits influence service innovation, the research integrates psychological and environmental factors to provide a more comprehensive perspective on workplace innovation. Furthermore, it demonstrates how external pressures, often perceived as stressors, can generate valuable personal resources that ultimately contribute to improved performance and adaptive capabilities.

4.2. Implications for practice

This study provides valuable insights for salespeople, managers, and various stakeholders in the innovation ecosystem. The findings reveal that customer demandingness drives SIB only through salesperson resilience and agility, not directly. Therefore, salespeople should view demanding customers as opportunities for growth rather than obstacles to performance. Instead of resisting high demands, they can leverage them as catalysts for innovation by employing structured methods such as design thinking and consultative selling to create tailored solutions in partnership with customers.

Managers can apply these findings by designing structured training programs that build sales team resilience and adaptability. Siemens Healthineers, for example, introduced an online program incorporating mind-body techniques such as meditation, breathing exercises, and expressive writing to help employees manage stress. Similar approaches can be adapted for sales environments through scenario-based modules and role-playing exercises that simulate difficult customer interactions. Adaptive selling techniques, which train representatives to adjust strategies in real time, further enhance responsiveness. Programs such as Klozers' Sales Confidence & Resilience Training demonstrate growing industry recognition of these competencies. To support recovery after challenging encounters, organizations may implement peer mentoring, post-call debriefing, and stress management workshops modeled on practices from high-pressure sectors. Historical models such as Xerox's SPIN Selling methodology provide a foundation for evidence-based training. During recruitment, managers should prioritize candidates with demonstrated agility and resilience, using behavioral interview techniques to assess past performance under pressure and adaptability to shifting market demands.

Approaching demanding customer needs as a structured input for innovation can enhance service development and responsiveness. One method involves forming customer advisory boards composed of high-value clients who meet regularly to co-create solutions, as seen in Microsoft's use of Dynamics 365 Customer Voice. Sales teams can also conduct monthly structured interviews with their most demanding customers using standardized tools to identify recurring pain points. Cross-functional innovation teams, bringing together sales, product, and service staff, can then analyze this feedback in 30-day cycles to generate

actionable insights. Performance systems should reflect this orientation by tracking metrics such as the number of insights generated, implementation rates of customer-suggested improvements, and post-feedback satisfaction scores. Salesforce's integration of sentiment data with Customer 360 illustrates how feedback can be systematically translated into service enhancements. Additionally, innovation labs can provide sales teams with dedicated time and resources to prototype solutions, with clear escalation channels to ensure promising ideas reach decision-makers within two weeks.

While our study does not directly inform policy, it offers practical value for industry associations and professional organizations seeking to enhance sales capabilities. Given the complexity of customer demands, sector-specific training programs should prioritize agility and resilience alongside technical proficiency. Traditional development efforts often overlook these behavioral competencies, yet they are essential for translating customer challenges into innovation opportunities. Associations with deep sector knowledge, such as those in HVAC, are well-positioned to design simulation-based modules within certification programs to prepare members for high-pressure interactions. Collaborative frameworks co-developed by industry experts and association leaders can further support small and medium-sized enterprises that lack the internal capacity to formalize customer-driven innovation processes. Partnerships with regulatory bodies may also help establish standards for service innovation that reframe demand complexity as a source of opportunity. For instance, the National Association of Home Builders offers targeted training like "Managing Difficult Clients Without Sacrificing Revenue," illustrating how professional organizations can address these needs through special training.

4.3. Limitations and future research directions

While illustrating how customer demandingness affects SIB through agility and resilience in salespeople, this study has limitations that contextualize the findings and guide future research. Firstly, using cross-sectional data limits causal inferences as it captures only a single point in time and may not reflect the dynamic nature of these relationships (Rindfleisch et al., 2008). Moreover, such data is subject to recall bias, even if we use procedural and statistical remedies to minimize it. Longitudinal studies are essential for tracking changes and establishing causality over time. Secondly, our symmetrical analysis assumes linear relationships (Pappas and Woodside, 2021), which may oversimplify the complex interactions between customer demandingness and salesperson behavior. Future research should consider employing asymmetrical methods, such as fuzzy-set qualitative comparative analysis (fsQCA), to depict these relationships' configurational and causal complexity (Pappas and Woodside, 2021). This approach would uncover multiple pathways to SIB, acknowledging the diverse contexts in which salespeople operate.

While our study clarifies how agility and resilience mediate the connection between customer demandingness and SIB, further investigation is required to explore additional mediators and moderators. Future studies could analyze psychological empowerment, emotional intelligence, and job satisfaction as potential mediating variables, which might provide a more thorough understanding of these dynamics. Additionally, organizational factors such as support, leadership style, and team dynamics could moderate these relationships, potentially enhancing or reducing the effects of customer demandingness on innovation. Understanding these contextual influences would provide valuable insights for managers looking to foster innovation among their sales force. Addressing these areas in future research, along with utilizing longitudinal designs and asymmetrical methods, would strengthen the robustness and applicability of our findings.

Despite its limitations and areas for future research, this study presents a model illustrating the interplay among customer demandingness, salesperson resilience, salesperson agility, and SIB while addressing potential CMB. This study advances service innovation and sales

research by demonstrating how frontline B2B salespeople convert customer demandingness into service innovation through resilience and agility. In conclusion, we reconceptualize customer demandingness as a conditional resource rather than a stressor, highlight these micro-level behavioral mechanisms, and extend existing work on individual enablers of innovation in B2B sales.

CRedit authorship contribution statement

Rıfı Bağcı Writing – original draft, Visualization, Project administration, Methodology, Formal analysis, Conceptualization. **Mehmet Zahid Poyraz** Writing – original draft, Investigation, Data curation. **İsmail Gölgeci** Writing – review & editing, Writing – original draft.

Declaration of generative AI in scientific writing

During the preparation of this work, the authors used ChapGPT 4-o, Writesonic, and Quillbot in order to improve the readability of the paper. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.technovation.2025.103351>.

Data availability

The data that has been used is confidential.

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