

Research paper

How to nudge industrial customers to accept free-to-fee service price switches?[☆]

Joonas Keränen^{a,b,*}, Anna Salonen^c, Harri Terho^d, Juha Munnukka^c

^a RMIT University, School of Economics, Finance, and Marketing, 445 Swanston St, Melbourne, Vic 3000, Australia

^b LUT University, Business School, P.O. Box 20, FI-53851 Lappeenranta, Finland

^c University of Jyväskylä, School of Business & Economics, PO Box 35, FIN-40014 Jyväskylä, Finland

^d University of Turku, Finland, Turku School of Economics, Rehtorinpellonkatu 3, 20500 Turku, Finland

ARTICLE INFO

Keywords:

Digital services
Willingness-to-pay
Free-to-fee
Servitization
B2B pricing
Behavioral decision-making

ABSTRACT

Capturing value from service provision is a persistent challenge for many firms. Sometimes, business-to-business (B2B) suppliers offer services for free to increase customer adoption at the early stages of servitization or to boost product sales. If customers initially receive services for free, managing the switch from free-to-fee at later stages is difficult. To address this managerial challenge, we examine how sellers of digital industrial services can use behavioral nudges to increase customer acceptance of a free-to-fee price switch. Using a scenario-based experiment with 386 industrial buyers, we test the effects of three choice architectures—motive justification, social influence-focused information provision, and loss versus gain framing—on customer willingness to switch. Our findings indicate that these nudges increase acceptance, but their effects range from small to medium and occur only among attentive audiences. The study contributes to both theory and practice by demonstrating that cognitive biases and decision-making heuristics play a role in B2B service pricing. Although nudges should not be viewed as a universal solution for behavioral change, their simplicity and low implementation costs make them a practical tool for managers. We encourage future research to critically examine the boundary conditions that influence nudge effectiveness across diverse B2B decision-making situations.

1. Introduction

Many industrial firms pursue servitization strategies to stave off commoditization and competition (Kowalkowski et al., 2022; Kowalkowski & Ulaga, 2024), leading to the development of a broad range of product-related services like maintenance, repair, and spare parts, asset monitoring, and product diagnostics (Ulaga & Reinartz, 2011). Digital technologies further accelerate this trend by creating novel opportunities to combine core product offerings with digital services that provide continuous visibility into and support for customer processes (Favoretto et al., 2022; Gebauer et al., 2021). This enables advanced process optimization and performance-based solutions, ultimately improving value creation for customers (Raddats et al., 2022; Ritala et al., 2024).

While customers benefit from value-added services, sellers often

struggle to capture value from service provision. Customers may resist value-based pricing schemes due to cognitive biases (Keränen, Kienzler, et al., 2023; Kienzler, 2018), and sellers may end up giving value-adding services away for free to boost product sales (Ulaga & Michel, 2018) or to gain customer awareness and acceptance of a novel service offering within a target group (Pauwels & Weiss, 2008). However, if customers initially receive services for free, implementing a free-to-fee switch can be challenging (Mustak et al., 2023).

To address this key managerial challenge, for which extant research provides sparse guidance, this study examines how sellers of digital industrial services can nudge customers to accept a free-to-fee switch. To do so, we examine the use of choice architectures as nudges that sellers intentionally leverage to guide buyers towards a free-to-fee switch (Thaler & Sunstein, 2021). To test the effects of three different pricing choice architectures on the customer's willingness to accept a free-to-fee

[☆] This article is part of a Special issue entitled: 'IMM Summit_Hobart' published in Industrial Marketing Management.

* Corresponding author.

E-mail addresses: joona.keranen@rmit.edu.au, joona.keranen@lut.fi (J. Keränen), anna.k.salonen@jyu.fi (A. Salonen), harri.terho@utu.fi (H. Terho), juha.t.munnukka@jyu.fi (J. Munnukka).

¹ All authors contributed equally

switch, we utilized a scenario-based experiment involving 386 industrial buyers. To develop realistic experiments, we collaborated with a well-established industrial supplier to design scenarios that reflect real-world purchasing situations.

To our knowledge, this is the first study that empirically examines how industrial service sellers can influence customer decision-making through behavioral nudges. The findings of this study offer novel contributions to the theory and practice of price communication in industrial markets. First, we contribute by explaining how sellers can nudge customers to accept a seller-communicated free-to-fee price switch (Mustak et al., 2023; Ulaga & Michel, 2018; Witell & Löfgren, 2013). While previous studies indicate that the “free-to-fee” transformation of industrial services is a significant and widespread challenge, resulting in lost revenue and opportunities to generate profit (Ulaga & Michel, 2018), to date, no studies have empirically examined how sellers can encourage customer acceptance of a free-to-fee price switch.

The findings of this study also have significance beyond the addressed empirical context of a free-to-fee transition. Our second contribution thus comes from demonstrating that business-to-business (B2B) buyers respond to seller-designed choice architectures that nudge customers towards accepting seller-communicated pricing decisions (Thaler & Sunstein, 2021). Furthermore, this behavioral tendency can be leveraged by the seller through simple nudges to increase customer price acceptance. In doing so, we contribute to the nascent stream of B2B pricing research that acknowledges the potential limits of rational and normative frameworks fully grounded in economic rationality (Hinterhuber & Liozu, 2015; Iyer et al., 2015; Keränen, Kienzler, et al., 2023; Kienzler, 2018; Wirtz & Kowalkowski, 2023).

Thirdly, our context-specific findings allow us to contribute to the broader ongoing scientific debate on the effectiveness of nudges. Prior research in behavioral economics has critically examined the magnitude and robustness of nudge effects, with meta-analytic findings yielding conflicting conclusions. While some studies suggest that nudges can promote behavioral change, typically with small to medium effect sizes (Hummel & Maedche, 2019; Luo et al., 2023; Mertens et al., 2022), others argue that once publication bias is accounted for, these effects largely disappear (Maier et al., 2022; Szasz et al., 2022). Our study supports both perspectives: the nudges examined significantly influence acceptance of a free-to-fee price switch, albeit with small to medium effect sizes, and these effects occur only among attentive customers. We therefore conclude that nudges are not a universal solution but can serve as a targeted, cost-efficient tool to enhance price acceptance among attentive audiences in the B2B context.

For managers, the findings from this study offer important insights into communicating free-to-fee changes to customers and how different cognitive biases influence customer perceptions and subsequent service purchasing/renewal decisions. Simply announcing a new (or higher) service fee without further explanation will likely generate customer resistance, while strategically framing the price change can enhance customer acceptance and minimize pushbacks.

The rest of the paper is structured as follows. First, we explain our conceptual background and develop our theoretical hypotheses. Then, we describe our experimental research design and report the empirical results. Finally, we discuss implications for theory and practice and highlight potential limitations and future research avenues.

2. Theoretical background

2.1. Behavioral decision-making view of service pricing

Previous studies indicate that the “free-to-fee” transformation of industrial services is a significant and widespread managerial challenge (Mustak et al., 2023), but due to a lack of research, we do not know how sellers can encourage customer acceptance of a free-to-fee price switch. The few studies that exist have adopted a supplier perspective and focus on explaining why different types of services are difficult to transform

from free-to-fee (Mustak et al., 2023; Ulaga & Michel, 2018; Witell & Löfgren, 2013).

To address this gap, we build on behavioral decision-making research to study the free-to-fee transformation from the perspective of B2B decision-makers. This research stream offers an established, strong theoretical grounding for studying the effective design of a free-to-fee pricing transition (see Dowling et al., 2020; Kahneman, 1991; Tversky & Kahneman, 1974).

Although B2B pricing research predominantly leverages rational and normative frameworks grounded in economic rationality to model pricing strategy decisions and their effects on customers (Iyer et al., 2015), there have been individual attempts to highlight the importance of understanding how heuristics used by managers influence decision-making in organizations (Brown et al., 2011; Brown et al., 2012), which has to some extent influenced B2B pricing research to incorporate behavioral issues.

As summarized in Table 1, several conceptual studies have argued that many behavioral pricing concepts from the consumer context also apply in the B2B context (e.g., Hinterhuber, 2015; Kienzler, 2018; Monroe et al., 2015). The few empirical studies that exist have considered how organizational buyers respond to specific service pricing schemes, such as bundled or ancillary services (Husemann-Kopetzky et al., 2025; Steiner et al., 2016) and outcome-based and gain-sharing pricing schemes (Pieringer & Totzek, 2022; Keränen, Kienzler, et al., 2023). Previous research has also examined the effects of price heuristics on customers' risk judgments (Saab & Botelho, 2020). However, while extant B2B pricing research acknowledges that heuristics and cognitive biases are widely present in B2B decision-making (Liozu, 2013), it does not provide systematic insights on whether and how suppliers can effectively use behavioral decision-making principles to design and communicate pricing to customers.

Building on behavioral decision-making research, we adopt a choice architecture perspective, which posits that sellers can structure decision environments to guide individuals towards desired outcomes, in this case, acceptance of a free-to-fee switch. Thaler and Sunstein (2021, p. 8) define a nudge as “any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives,” emphasizing further that nudges should be easy to avoid and ethically transparent (Sunstein, 2014). Nudges can take various forms, including framing decisions as gains or losses, leveraging social influence, providing information, using defaults, or increasing convenience (Sunstein, 2014; Thaler & Sunstein, 2021). Recent meta-analyses classify nudges into three categories: “decision information nudges” that focus on the description of alternatives, “decision structure nudges” that target the organization and structure of choice alternatives, and “decision assistance nudges” that focus on reinforcement of behavioral intentions (Hummel & Maedche, 2019; Johnson et al., 2012; Mertens et al., 2022).

The effectiveness of nudges remains debated. While some recent meta-analytical studies find that nudges promote behavioral change with small to medium effect sizes (Hummel & Maedche, 2019; Luo et al., 2023; Mertens et al., 2022), other studies argue that, once publication bias is accounted for, these effects largely disappear (Maier et al., 2022; Szasz et al., 2022). This debate underscores the need for more context-specific research on when and how nudges work.

In line with this, we design a series of experiments to examine B2B customers' acceptance of free-to-fee pricing schemes that are identical in price and benefits but differ in choice architecture elements. Given that B2B decision-makers are typically knowledgeable experts, we focus on decision-information nudges expected to fit this context. Specifically, we test three nudges—motive justification, social influence information, and loss-versus-gain framing—to explore how sellers of digital services can apply choice architecture principles to increase willingness to accept a free-to-fee switch. Following Bateman et al. (1997), willingness to accept is defined as the buyer's threshold for accepting a previously free service becoming fee-based, as influenced by behavioral nudges.

Table 1
Overview of behavioral economics studies in B2B pricing.

Study	Focus	Behavioral issues addressed	Methods	Perspective	Findings
Hinterhuber (2015)	Violations of rational choice principles in pricing decisions	Cognitive biases affect both customers' purchase decisions and managers' price-setting processes	Conceptual	Customer & Seller	Identifies how both customers and managers frequently violate rational choice principles in pricing, leading to suboptimal decisions. Highlights the need to be aware of these biases to improve pricing strategies.
Monroe et al. (2015)	Application of behavioral pricing concepts in B2B markets	Reference prices, price thresholds, acceptable price range, price as an indicator of quality, price-perceived value model	Conceptual	Customer & Seller	Many behavioral pricing concepts from B2C contexts are applicable in B2B settings, influencing pricing decisions and strategies.
Iyer et al. (2015)	Behavioral issues in B2B price setting	Managerial biases and their influence on the price-setting process at the individual and group level	Conceptual	Seller	Identifies individual and group influences affecting managerial price-setting processes in B2B contexts.
Woodside (2015)	General theory of behavioral pricing	Cognitive processes, complexity theory, and heterogeneity in pricing decisions	Conceptual	Customer & Seller	Proposes a context-rich, path-dependent theory of behavioral pricing, emphasizing the need to capture heterogeneity and realistic decision-making processes in B2B pricing
Kienzler (2018)	Value-based pricing and cognitive biases	Cognitive biases affecting pricing practices	Conceptual	Customer	Cognitive biases, such as perceived lack of control and ambiguity aversion, inhibit the adoption of value-based pricing in B2B markets.
Steiner et al. (2016)	Value capture in service bundling	Impact of bundling services on customers' willingness to pay and perceived value	Empirical: Survey data from 453 managers	Customer & Seller	Offering customized service packages can reduce customers' willingness to pay by nearly 5% compared to separately assessed services. Firms with strong purchasing power tend to demand greater discounts for such packages.
Saab and Botelho (2020)	Rationality of organizational buyers	Use of price heuristics and price-quality effect in functional risk judgment	Empirical: Experimental study with 321 professional purchasers	Customer	Organizational buyers use price heuristics to assess functional risk, and higher prices lead to a lower perceived risk, even when product information is held constant.
Pieringer and Totzek (2022)	Acceptance of outcome-based pricing in solution selling	Influence of perceived supplier opportunism and customer characteristics on acceptance of outcome-based pricing	Empirical: Cross-industry survey with 172 B2B managers	Customer	Customers' acceptance of outcome-based pricing decreases when they perceive supplier opportunism, especially if they have an opportunistic mindset, high switching costs, or larger firm size.
Keränen, Kienzler, et al. (2023)	Gain-sharing in performance-based contracting	How does the type of gain-sharing pricing scheme influence the customer's willingness-to-switch to a performance-based contract	Empirical: Scenario-based experiment with 437 professional purchasers	Customer	Customers are more likely to switch to a "partial gain-sharing pricing scheme" instead of a financially equivalent "full gain-sharing pricing scheme". This is due to fairness perception, rather than risk perception, driving customers' willingness to switch to gain-sharing arrangements.
Husemann-Kopetzky et al. (2025)	Industrial customers' willingness-to-pay for ancillary services	Dual entitlement effects	Empirical: Scenario-based experiments with 444 decision-makers in organizational procurement	Customer	The price of the core product positively affects customer entitlement perception, reducing customers' willingness to pay for the ancillary service. The profitability of the core product and the ancillary service moderates this process.

2.2. Price change motive justification as a nudge to encourage a free-to-fee switch

First, as noted above, B2B marketing pricing literature builds heavily on the rationality assumption for explaining how B2B decision-makers respond to pricing decisions (see Hinterhuber & Liozu, 2015; Keränen et al., 2024). Rational decision-making principles build on utility theory, which assumes that individuals make decisions that maximize their expected utility (Tversky, 1975). When applied to free-to-fee switching behavior, this would mean that decision-makers are expected to focus on decision-making criteria that allow assessment of expected utility. However, we build on behavioral decision-making research to argue that B2B buyers' acceptance of free-to-fee pricing is not fully based on utility calculations, but is also influenced by non-standard decision-making criteria, such as emotional or social factors (see Dowling et al., 2020).

Specifically, our first hypothesis builds on dual entitlement theory, grounded in behavioral economics, which posits that customers, as decision-makers, believe they are entitled to a reasonable price, while acknowledging that sellers are entitled to a reasonable profit (Kahneman et al., 1986a, 1986b). Ultimately, dual entitlement theory centers on

fairness, explaining how people judge fairness in economic transactions, with both buyers and sellers feeling entitled to certain fair outcomes (Thaler, 1985). Fairness thus acts as a constraint on profit-maximizing behavior so that in the context of a price increase, sellers must convince customers that the price increase is fair, for instance, by explaining that increased costs place unreasonable strains on the seller's reference profit (Kahneman et al., 1986a).

While the customer's overall price fairness assessment depends on the price-benefits balance, customers tend to evaluate cost-based price increases as fairer than value-based price increases (Kahneman et al., 1986a; Kienzler, 2018). Accordingly, we hypothesize that when suppliers provide a clear price change motivation tied to the cost of doing business as an informational nudge, customers will be more likely to accept the free-to-fee switch (Thaler & Sunstein, 2021). Further, the hypothesized positive relationship between cost-based justification and customers' willingness to switch is mediated by fairness perceptions (see Fehr et al., 2006). Thus, we hypothesize:

Hypothesis 1a. If a seller informs the customer that the proposed free-to-fee price switch is motivated by the seller's high costs of providing the service, this increases the customer's willingness to switch.

Hypothesis 1b. Price motive -nudge driven customer acceptance is explained by the mediating effect of perceived fairness.

2.3. Social influence-focused information as a nudge to encourage a free-to-fee switch

The second hypothesis builds on another non-standard decision-making criterion (see Dowling et al., 2020) that emphasizes social influence factors affecting the acceptance of the free-to-fee change. Specifically, we build on classic conformity bias research (Asch, 1955; Hinterhuber, 2015), which has demonstrated that individual consumers as decision-makers conform to the actions and opinions of others. Building on this conformity principle, we hypothesize that *social influence-focused information* can be used as a choice architecture tool to facilitate free-to-fee switch acceptance among customers (see Thaler & Sunstein, 2021).

Furthermore, we propose that the hypothesized link between social influence information and acceptance of the free-to-fee transition can be explained by two distinct theoretical mechanisms: ease of justifying the choice and reduced risk perceptions. First, ease of justifying refers to a decision maker's perception of being able to defend a particular choice to others (Simonson, 1989), and thus, they may experience social pressure, often driven by a desire for social acceptance (Asch, 1955). Even in B2B contexts, deviating from widely adopted choices is likely to be perceived negatively (Hinterhuber, 2015), suggesting that when a decision is commonly made by others, it becomes easier to justify internally to colleagues and superiors, thereby facilitating acceptance. Second, risk perception is understood as a decision maker's subjective judgment about the uncertainty or potential negative consequences of a particular choice, especially if being assessed or accountable for the decision (Simonson, 1989). When others have preferred a specific option, it signals the appropriateness of that choice. From this perspective, information about others' decisions not only enhances the justifiability of the choice to others but also serves as a signal that reduces perceived risk, consistent with signaling theory (Boyd et al., 2023; Spence, 1973, 2002). Thus, we hypothesize:

Hypothesis 2a. If the seller informs the customer that the proposed free-to-fee price switch is acceptable to other buyers, this increases the customer's willingness to switch.

Hypothesis 2b. Social influence -nudge driven customer acceptance is explained by the mediating effect of ease of justifying the choice to others.

Hypothesis 2c. Social influence -nudge driven customer acceptance is explained by the mediating effect of reduced risk perceptions.

2.4. Loss aversion framing as a nudge to encourage a free-to-fee switch

Third, we build on classic behavioral decision-making research to argue that framing pricing choices in terms of losses vs. gains influences the customer's acceptance of a free-to-fee price switch (Thaler & Sunstein, 2021). Furthermore, two alternative theoretical mechanisms, the perceived attractiveness and perceived value of the offering, also influence this mechanism.

Firstly, prospect theory (Kahneman & Tversky, 1979) argues that decision-makers evaluate outcomes as gains or losses relative to a reference point and that they tend to respond more strongly to potential losses than to potential gains (Levin et al., 1998). We argue that the seller can draw on this principle by focusing the customer's attention on the benefits of the service. If these benefits have been demonstrated to customers through trial use and the seller highlights that the customer loses them by not switching, we expect this to increase the perceived attractiveness of the fee-based offering. Perceived attractiveness is thus defined as a psychological construct that reflects a decision maker's subjective judgment about how appealing a particular risky choice is,

and it is affected by perceived losses and gains (Weber et al., 1992).

Secondly, endowment theory offers an alternative view on why a loss framing can make buyers more willing to adopt the free-to-fee shift. According to this view, individuals tend to value more what they already possess (Thaler, 1980), so framing the paid offering as preserving existing benefits can increase the perceived value and thereby adoption of the deal. Hence, we hypothesize as follows:

Hypothesis 3a. If the seller frames the proposed free-to-fee price switch with loss framing (as compared to gain framing), this increases the customer's willingness to switch.

Hypothesis 3b. Loss framing -nudge driven customer acceptance is explained by the mediating effect of perceived attractiveness.

Hypothesis 3c. Loss framing -nudge driven customer acceptance is explained by the mediating effect of perceived value of the offering.

We test the above hypotheses through scenario-based experiments. While choice architecture elements alone are unlikely to fully explain the customer's willingness to switch, they nevertheless provide highly easy-to-implement and cost-effective tools to facilitate a free-to-fee price switch acceptance among customers.

3. Methodology

3.1. Study design

To test the developed hypotheses, we utilized a between-subjects, scenario-based experimental design (see Table 2). The developed scenario incorporated a decision-making situation framed in the context of B2B industrial maintenance services where the seller proposes a free-to-fee price switch to the customer. All groups were exposed to the same base scenario.

The first experiment (study 1) tests the effectiveness of a price change motive justification as a nudge to increase customer acceptance of the proposed free-to-fee price switch (H1a). This was done by providing the test group with additional motive justification-focused information for the free-to-fee pricing policy change that pertained to the costs incurred by the seller to provide the service – see Manipulation 1 of Table 2. Here, we expected that price fairness (H1b) is the mechanism that explains the main effect.

The second experiment (study 2) investigates the effect of social influence-focused information provision as a nudge to increase customer acceptance of the proposed free-to-fee price switch (H2a). Here, the manipulation focused on providing the test group with additional social influence-focused information about other customers' switching behavior – see Manipulation 2 of Table 2. We expected two possible mediators explaining why social influence should increase customer acceptance of the proposed free-to-fee price switch: the role of perceived risk (H2b) and ease of justifying the purchase to others (H2c).

Finally, the third experiment (Study 3) examined the impact of a loss (vs. gain) framing as a nudge to increase customer acceptance of the proposed free-to-fee price switch (H3a). Unlike the other two experiments, the manipulation did not involve providing the test group with additional information. Instead, the consequences of not buying were framed differently, that is, by highlighting the potential losses instead of gains – see Manipulation 3 in Table 2. Here, we had two potential mediators: the perceived attractiveness (H3b) and the perceived value of the offering (H3c).

We ensured the robustness of the scenarios in several ways. First, for realism, we selected a service context in which switching from a free add-on service to a fee-based service is a recurring challenge. The digital industrial maintenance service provided by a crane manufacturer was identified to comply with this criterion. Second, detailed specifications of the service in question were needed to ensure the realism and authenticity of the experiment. The scenarios describing the service specifications were developed in close collaboration with a globally

Table 2
Summary of study design and experimental manipulations.

Study	Study data	Study focus	Implementation
Studies 1, 2, 3	Common control group (n = 95)	The free-to-fee price switch base scenario	Base scenario presented to the control group and the test groups
Study 1	Test group 1 (n = 99)	Motive justification	Manipulation with added information
Study 2	Test group 2 (n = 89)	Social influence focused information provision	Manipulation with added information
Study 3	Test group 3 (n = 103)	Loss framing	Manipulation with alternative information

Common baseline scenario presented to all groups:

Imagine that you work in an industrial facility that has a material handling equipment that is used to lower, lift, or move heavy loads horizontally through the overhead space in the facility. This helps you to facilitate the management of material flows.

To ensure the equipment’s functionality, maintenance personnel from the seller of the equipment does yearly checkups and maintenance. You pay the seller for the services rendered.

The material handling equipment is connected to the seller’s digital portal, which gives you easy access to remotely monitor your equipment’s maintenance information, asset condition, and usage data. This gives you a transparent view of all the maintenance activities, asset usage patterns, and estimation of the equipment’s remaining service life, helping you to make informed maintenance decisions. Previously, the seller has not charged you for this digitally enabled remote monitoring service.

Control group: Basic information about the “free to fee” transition

The seller informs you that they will start to charge for the remote monitoring service package. The remote monitoring service package costs 1000 EUR/year. You have been satisfied with the functionality offered by this service. *The seller indicates that by continuing the service agreement customers can gain approximately 20% lower equipment maintenance costs.* ^(see manipulation 3)

Manipulation 1: Motive justification – additional information:

“According to the seller, the shift from free to fee is necessary to cover the costs related to ensuring continued excellence in service provision. This requires continuous development of the service by the firm’s highly skilled data analytics team.”

Manipulation 2: Social influence – additional information:

“For some of its customers, the seller has initially offered this service with an agreed-upon one-year free trial period. 85% of these customers have opted to continue using this service for a fee after the end of the free trial period.”

Manipulation 3: Loss framing – alternative* framing of consequences:

“The seller indicates that by discontinuing the service agreement customers risk losing approximately 20% lower equipment maintenance costs.” ^(instead of basic information framing)

operating industrial supplier. All experiments were designed and implemented in English, using as clear and simple language as possible to ease respondents and lessen the potential for misunderstanding. Fourth, the experimental procedure and the scenarios (a common control scenario and one for each experimental condition) were carefully prepared and pretested to effectively manipulate the cognitive biases examined across the three studies.

3.2. Study measures

Independent variables were formed by coding experiment groups with dichotomous indicators (0 = control group, 1 = test group) based on the experimental manipulations discussed above. **Table 3** summarizes all other measures of the study.

We relied on established single-item measures from prior research to ensure a manageable response time and to facilitate data collection among the challenging target group of B2B decision-makers. Prior research has shown that single-item measures exhibit comparable predictive validity to multiple-item measures (Bergkvist & Rossiter, 2007), particularly when the measurement concerns a concrete, singular object (a specific scenario decision) and a clearly defined attribute (a specific perception within the scenario).

Specifically, to ensure the functionality of the manipulations, we used separate manipulation check questions for all three study scenarios related to motive justification framing (MOTIVE), social influence-focused information provision (SOCIAL), and loss (vs. gain) framing

Table 3
Measures of the study.

Manipulation checks	
Motive justification (MOTIVE):	I think that the service fee is mainly due to the costs of service provision (1 – Totally Disagree to 7 – Totally Agree)
Social influence focused information provision (SOCIAL):	I think that the vast majority of other customers choose to continue the service for a fee 1 - Totally Disagree to 7 – Totally Agree)
Loss framing (LOSS):	I think that by discontinuing the service agreement, I risk losing savings in equipment maintenance costs (1 - Totally Disagree to 7 – Totally Agree)
Dependent variable	
Purchase intention (PI%) (Anderson & Wynstra, 2010)	How likely are you to buy this service? with a scale ranging from 0 to 100. (0 – “No chance” and 100 – “Certain purchase”)
Mediators	
Price fairness (FAIR) (Grewal et al. (2004)	How fair is the service fee of 1000€? (1 - Very Unfair to 7 - Very Fair)
Perceived risk (RISK) (Yang et al. (2013)	Please rate the extent to which there is risk in the “service purchase” (1 – “Not at All” to 7 – “Very Much”)
Ease of justification to others (EASE) (Simonson (1989)	Please rate the difficulty of justifying the service purchase to colleagues (1 – “Very Difficult” to 7 – “Very Easy”)
Perceived attractiveness (ATTR) (Simonson (1989)	Please rate the overall attractiveness of the service (1 – “Very Unattractive” to 7 – “Very Attractive”)
Perceived value (VALUE) (Arslanagic-Kalajdzic and Zabkar (2017)	Please rate the extent to which the service offers value for money (1 – “Very Low Value” to 7 – “Very High Value”)
Control & Moderating variables	
Management level (MANAG)	0 = 1st level or non-management; 1 = middle or top-level manager
Work experience (EXPER)	Years of experience in the current role

(LOSS). In turn, purchase intention (PI%, dependent variable) was measured using a single-item measure by Anderson and Wynstra (2010) for all experiments based on percentage (0–100%) anchoring. Each study applied established single-item measures with 7-point Likert scales for mediating variables drawn from prior studies.

The price fairness (FAIR) measure was drawn from Grewal et al. (2004), perceived risk (RISK) by Yang et al. (2013), ease of justification to others (EASE), and perceived attractiveness (ATTR) by Simonson (1989), and perceived value (VALUE) by Arslanagic-Kalajdzic and Zabkar (2017). Finally, the work experience (EXPER) in the current purchasing role (measured as years of experience) and the management level (MANAG; 0 = 1st level or non-management, 1 = middle or top-level manager) were included as control variables to exclude their potential inference on the results and to enhance the generalizability of the results.

3.3. Data collection

We collaborated with a reputable and established panel data provider (Qualtrics) to collect the data. Data collection was carried out in 2023–2024. For securing the response validity, the recruited participants were set to fulfill four criteria: 1) the respondents must be involved in purchasing decisions at their workplace, 2) they must work for a company with 10 or more full-time employees, 3) they should have at least 1 year of professional purchasing experience, and 4) must have been involved in purchasing decisions in the previous year. These were assessed as important characteristics, allowing participants to properly

understand the experiment context provided in the scenarios and to offer well-thought responses based on their experience and industry knowledge. Respondents were compensated by Qualtrics for their participation.

A random sample of participants who engaged in purchasing activities and met the selection criteria was drawn from the panel. The respondents were first shown a privacy notice and asked to accept the conditions. This was followed by three screening questions and an attention check question, after which the respondents were directed to the main sections of the questionnaire. Next, respondents were exposed to a common base scenario (see Table 2) describing a fictitious purchasing situation. Then, the participants were randomly allocated into the test groups and the control group. After reading the scenarios, participants were instructed to respond to the measurement scales. All test groups had the same dependent item, but different mediating and manipulation check items. At the end of the survey, respondents were asked a few background questions and given the opportunity to provide feedback on the study.

We acknowledged the nature of the online experiment, in which participants' carelessness and inattention pose clear dangers to response validity (Viglia et al., 2021). Thus, as suggested by Abbey and Meloy (2017) and Meade and Craig (2012), several measures related to data collection design and post hoc methods were applied to detect and remove inattentive participants, to secure the validity of the data. These included attention checks are discussed in detail in Section 3.4.

3.4. Sample

Data collection resulted in a final sample of 386 valid responses. The original sample included 891 respondents who agreed to the privacy policy, worked for a company with at least 10 full-time employees, were involved in purchasing decisions at their company in the previous year, and had at least 1 year of professional purchasing experience. Additional post hoc measures were taken to detect careless or inattentive respondents, such as checking the attention control variable, participants' unrealistically fast response times, and response patterns. These post hoc validation measures resulted in the removal of 505 responses from the data, primarily due to inattention as identified by less than 2 s of attention to the baseline scenario text of the study. Consistent with Abbey and Meloy (2017), the inattentive response rate in the post hoc measurement was relatively high (57% of respondents). After excluding these non-valid respondents, the final dataset consisted of 386 valid responses that represented the four groups relatively equally: the group-specific datasets were $n = 95$ for the common shared control group, $n = 99$ for the test group of motive justification (study 1), $n = 89$ for the test group of social influence focused information provision (study 2), and $n = 103$ for the test group of loss (vs. gain) aversion framing (study 3). Table 2 summarizes the effective sample sizes for the studies. The results of each study are presented below.

3.5. Data analysis

The data were analyzed using ANOVA and the PROCESS macro plugin for SPSS (Hayes, 2017). One-way ANOVA was used to test the success of the manipulations and main effects. In turn, the PROCESS macro in SPSS with 5000 bootstrap samples was used to test the mediation hypotheses and to conduct post hoc moderation analyses.

4. Results

We use a standard reporting format for all three studies. First, we present evidence of the manipulation success based on manipulation checks, then an analysis of the main effects based on ANOVA, and finally an analysis of the mediation and moderation effects based on the PROCESS macro. A concise discussion of the results is presented at the end of each study.

4.1. Study 1 - motive justification as a nudge to encourage a free-to-fee switch

Manipulation check: The manipulation of motive justification was successful as the mean value of the manipulation check variable was significantly higher in the test group than in the control group: $M_{\text{control}} = 4.86$, $SD = 1.37$ vs. $M_{\text{test}} = 5.35$, $SD = 1.23$; $F[1, 192] = 7.00$, $p = 0.009$.

Main effect: First, we tested the effect of motive justification on purchase intention ($PI_{\%}$) by comparing the purchase intention between the control and test group (Fig. 1). A one-way ANOVA showed significantly higher intention among the test group exposed to the motive justification scenario than the control group: $M_{\text{control}} = 65.11$, $SD = 23.29$ vs. $M_{\text{test}} = 72.78$, $SD = 19.54$, $F[1, 192] = 6.19$, $p = 0.014$; effect size (η^2) = 0.031.

Mediation effect: Next, the effect of motive justification (MOTIVE) on price fairness (FAIR) was tested. A one-way ANOVA showed that price fairness was perceived as higher among the test group than the control group: $M_{\text{control}} = 4.55$, $SD = 1.61$ vs. $M_{\text{test}} = 5.03$, $SD = 1.30$, $F[1, 192] = 5.30$, $p = 0.022$; effect size (η^2) = 0.027. A PROCESS mediation analysis with 5000 bootstrap samples (Fig. 2) confirmed a significant indirect effect of motive justification on purchase intention $AB_{\text{fair}} = 0.245$ ($SE = 0.101$; 95% CI: LLCI 0.043, ULCI 0.447) mediated through price fairness ($\beta_{\text{motive-fair}} = 0.361$; $p = 0.015$; $\beta_{\text{fair-PI\%}} = 0.679$; $p < 0.001$).

A full mediation effect exists as the direct effect of motive justification on purchase intention is turned insignificant ($C' = 0.128$, $p = 0.241$) when controlling for the impact of price fairness.

Control Variables and Post-Hoc Moderation Effects Analysis: The effects of the control variables are shown in Table 4. The results indicated that neither work experience ($\beta_{\text{pi\%}} = 0.067$, $p = 0.212$; $\beta_{\text{fair}} = 0.052$, $p = 0.479$) nor management level ($B_{\text{pi\%}} = 0.025$, $p = 0.644$; $\beta_{\text{fair}} = -0.035$, $p = 0.640$) had a significant effect on price fairness or purchase intention. However, a potential moderating effect of management level was further examined through a post hoc interaction effect analysis. The results showed that it significantly and positively moderated the relationship between motive justification and price fairness (unstd. $B = 1.434$, $p = 0.003$), while no such effect on purchase intention was detected (unstd. $\beta = -1.334$, $p = 0.806$). Therefore, the effect of motive justification on price fairness was significantly higher among senior managers than 1st level managers or non-management individuals.

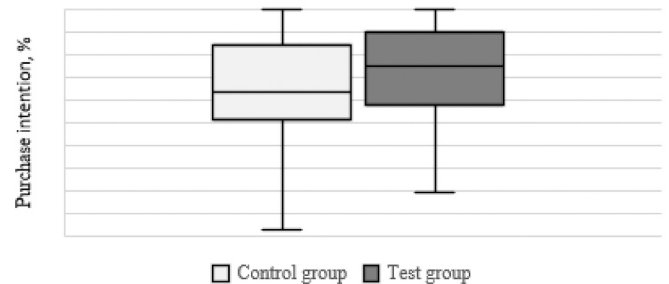
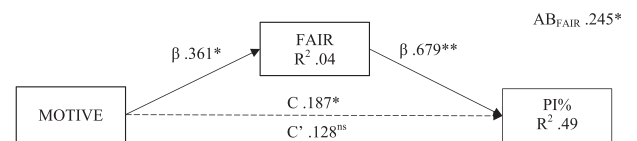


Fig. 1. Study 1, group comparison for motive justification.



ns=not significant; **= $p < .01$; *= $p < .05$
 MOTIVE=motive justification; FAIR=price fairness; PI%=purchase intention
 AB=indirect effect, C=direct effect, C'=direct effect when controlling for mediators

Fig. 2. Study 1, results for mediation effects.

Table 4
Effects of control variables and post hoc interaction effect analysis.

DV	IV	t	p	β
PI%	MANAG	0.46	0.644	0.025
	EXPER	0.71	0.212	0.067
FAIR	MANAG	-0.47	0.640	-0.035
	EXPER	0.71	0.479	0.052
Interaction effect		t	p	unstd. β
Motive x Manag → PI%		-0.25	0.806	-1.334
Motive x Manag → FAIR		2.99	0.003	1.434

Note: MOTIVE = motive justification; FAIR = price fairness; PI% = purchase intention; EXPER = work experience; MANAG = management level (non-management or 1st level management vs. senior management), unstd. β = unstandardized beta value.

Discussion: The study examined the effectiveness of motive justification as a nudge in enhancing the customers' acceptance of a free-to-fee price switch. A motive justification significantly increased the purchase intention of the newly priced service. Mediation analysis showed that motive justification positively influenced price fairness perceptions, which, in turn, increased the customer's purchase intention, highlighting the critical role of price fairness perceptions in encouraging acceptance of the free-to-fee price switch. Control variables had no direct effect, but the management level moderated the relationship between motive justification and price fairness. Higher-level managers perceived the price as fairer and thus had a higher purchase intention than lower-level or non-managers. These findings underscore the effectiveness of motive justification as a nudge to enhance customer acceptance of a free-to-fee price switch and suggest targeting this message to higher-level managers to increase its effectiveness.

4.2. Study 2 – Social influence information as a nudge to encourage a free-to-fee switch

Manipulation check: The manipulation of social influence focused information provision (SOCIAL) was successful as the mean value of the manipulation check variable was significantly higher for the test group than for the control group: $M_{\text{control}} = 4.99, SD = 1.38, M_{\text{test}} = 5.59, SD = 1.20, F [1, 182] = 9.80, p = 0.002$.

Main effect: First, the effect of social influence on purchase intention (PI%) was analyzed by comparing the mean values of the purchase intentions between the control group and the test group (Fig. 3).

The results of ANOVA showed that purchase intention was significantly higher among the test group exposed to the social influence scenario than the control group: $M_{\text{control}} = 65.11, SD = 23.29$ vs. $M_{\text{test}} = 74.91, SD = 18.38, F [1, 182] = 9.95, p = 0.002$; effect size (η^2) = 0.052.

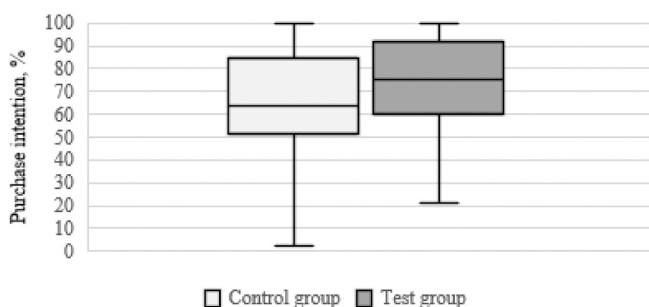


Fig. 3. Study 2, group comparison for social influence focused information provision.

Mediation effects: Next, the effects of social influence on perceived risk of the purchase (RISK) and ease of justification to others (EASE) were tested. A one-way ANOVA showed that ease of justifying the decision was perceived as somewhat higher among the test group than the control group: $M_{\text{control}} = 4.62, SD = 1.56$ vs. $M_{\text{test}} = 5.07, SD = 1.55, F [1, 182] = 3.83, p = 0.052$; effect size (η^2) = 0.021. The difference between the groups is almost significant at 5% level. In turn, the results of ANOVA showed that perceived risk was not different among the control and test groups: $M_{\text{control}} = 4.00, SD = 1.69$ vs. $M_{\text{test}} = 3.92, SD = 1.76, F [1, 182] = 0.11, p = 0.744$; effect size (η^2) = 0.001.

Aligned with these results, a mediation analysis with PROCESS macro (Fig. 4) revealed a significant indirect effect of social influence on purchase intention, $AB_{\text{ease}} = 0.202$ (SE = 0.101; 95% CI: 0.123, 0.404) mediated through ease of justification to others ($\beta_{\text{social-ease}} = 0.304, p = 0.010$; $\beta_{\text{ease-PI}} = 0.665; p < 0.001$).

However, no such indirect effect via perceived risk $AB_{\text{risk}} = -0.007$ (SE = 0.019; 95% CI: -0.048, 0.033) was detected ($\beta_{\text{social-risk}} = 0.062, p = 0.104$; $\beta_{\text{risk-PI}} = -0.106; p = 0.073$). The results further indicate a partial mediation as the analysis shows that while controlling the influence of mediators, social influence still had a positive and significant effect on purchase intention ($C' = 0.257, p = 0.025$). Thus, the effect of social influence on purchase intention is partially mediated through ease of justification, as no indirect relationship was detected through perceived risk.

Controls and Post-Hoc Moderation Effects Analysis: The control variables of management level and work experience were found to have mixed effects on the model, as shown in Table 5. The respondents' management level had a significant negative effect only on ease of justification ($\beta = -0.157, p = 0.039$), having no effect on perceived risk ($\beta = 0.039, p = 0.602$) or purchase intention ($\beta = -0.027, p = 0.643$). Work experience had a significant negative effect on perceived risk ($\beta = -0.232, p = 0.002$), while having no effect on ease of justification ($\beta = -0.035, p = 0.645$) or purchase intention ($\beta = -0.026, p = 0.796$). A post hoc interaction effect analysis of the potential impact of management level on the paths in the model was conducted. No moderating effect was detected for the relationships between social influence and purchase intention ($\beta = -1.172, p = 0.841$), perceived risk ($\beta = 0.528, p = 0.384$), or ease of justification ($\beta = 0.210, p = 0.710$).

Discussion: Study 2 examined the use of social influence focused information provision as a nudge in encouraging the free-to-fee switch mediated through ease of justification to others and perceived risk of the purchase. Social influence significantly increased purchase intention. Mediation analysis further showed that it positively affected perceived ease of justifying the purchase to others within the organization, which, in turn, increased purchase intention. Perceived risk was not affected. The control variables had mixed effects, with management level negatively affecting ease of justifying and work experience negatively affecting perceived risk. Post hoc analysis revealed that no moderating effects exist. These findings highlight the effectiveness of social influence focused information provision as a nudge to increase customer acceptance of a free-to-fee price switch as directed through ease of justification.

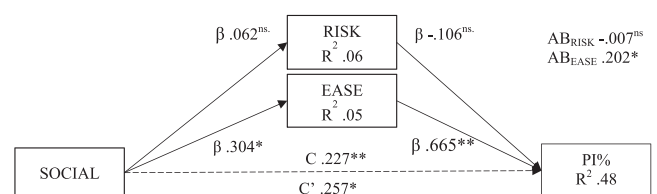


Fig. 4. Study 2, results for mediation effects.

Table 5
Effects of control variables and post hoc interaction effect analysis.

DV	IV	t	p	β
PI%	MANAG	-0.47	0.643	-0.027
	EXPER	-0.26	0.796	-0.015
RISK	MANAG	0.52	0.602	0.039
	EXPER	-3.09	0.002	-0.232
EASE	MANAG	-2.08	0.039	-0.157
	EXPER	-0.46	0.645	-0.035

Interaction effect	t	p	unstd. β
Social x Manag → PI%	-0.20	0.841	-1.172
Social x Manag → RISK	0.87	0.384	0.528
Social x Manag → EASE	0.37	0.710	0.210

Note: SOCIAL = social influence; RISK = perceived risk; EASE = ease of justification; PI% = purchase intention; EXPER = work experience; MANAG = management level (non-management or 1st level management vs. senior management), unstd. β = unstandardized beta value.

4.3. Study 3 - Loss (vs. gain) framing as a nudge to encourage a free-to-fee switch

Manipulation check: The manipulation of loss framing (LOSS) was successful as the mean values of the manipulation check variable were identified as significantly different in a one-way ANOVA ($F[1, 196] = 14.02, p < 0.001$) between the control group ($M = 4.96, SD = 1.36$) and the test group ($M = 5.67, SD = 1.32$).

Main effect: The effect of loss framing on purchase intention (PI%) was first tested by comparing the purchase intention between the control group and the test group (Fig. 5). An ANOVA showed that purchase intention was significantly higher among the test group that was presented the loss framing scenario than the control group: $M_{\text{control}} = 65.11, SD = 23.29$ vs. $M_{\text{test}} = 72.56, SD = 24.56, F(1, 196) = 4.78, p = 0.030$; effect size (η^2) = 0.024.

Mediation effects: Next, the effects of loss framing on perceived attractiveness of the service (ATTR) and perceived value (VALUE) were tested. The results of ANOVA show that service attractiveness was only marginally higher among the test group than the control group and thus not reaching the cut-off significance level: $M_{\text{control}} = 4.87, SD = 1.54$ vs. $M_{\text{test}} = 5.26, SD = 1.39, F[1, 196] = 3.64, p = 0.058$; effect size (η^2) = 0.018. In turn, the perceived value of the service was considered significantly higher among the test group than the control group: $M_{\text{control}} = 4.73, SD = 1.42$ vs. $M_{\text{test}} = 5.32, SD = 1.29, F[1, 196] = 9.45, p = 0.002$; effect size (η^2) = 0.046.

In line with these results, a mediation analysis (Fig. 6) confirmed a significant indirect effect of loss framing on purchase intention $AB_{\text{value}} = 0.271$ (SE = 0.093; 95% CI: LLCI 0.098, ULCI 0.460) via perceived service value ($\beta_{\text{loss-value}} = 0.469, p < 0.001$; $\beta_{\text{value-PI\%}} = 0.579, p < 0.001$). However, indirect effect via service attractiveness $AB_{\text{attr}} = 0.068$ (SE = 0.043; 95% CI: LLCI -0.0004, ULCI 0.162) was marginally insignificant, although the individual paths between loss framing and service

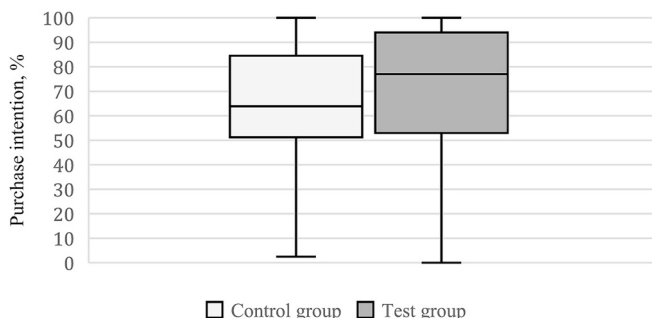
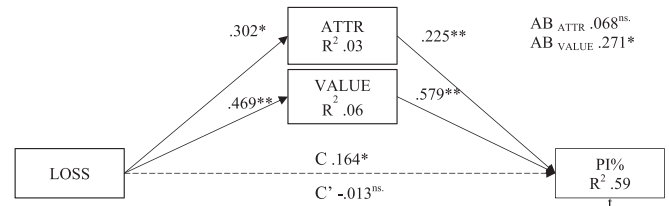


Fig. 5. Study 3, group comparison for loss (vs. gain) framing.



ns=not significant; **= $p < .01$; *= $p < .05$
LOSS=loss (vs. gain) framing; ATTR=perceived attractiveness of service; VALUE=perceived value of service; PI%=purchase intention
AB=indirect effect, C = direct effect, C' = direct effect when controlling for mediators

Fig. 6. Study 3, results for mediation effects.

attractiveness ($\beta_{\text{attr}} = 0.302, p = 0.037$) as well as service attractiveness and purchase intention ($\beta_{\text{attr}} = 0.225, p = 0.003$) were significant. The results indicate full mediation, as the direct effect of loss framing on purchase intention became insignificant when the mediators were included in the model ($C' = -0.013, p = 0.896$). Therefore, perceived value was found to fully mediate the loss framing and purchase intention relationship, as the indirect effect via service attractiveness was insignificant.

Controls and post hoc moderation effect analysis: The control variables (work experience and management level) were found to have no significant impact on the variables in the model, as shown in Table 6. However, the potential moderating effect of management level (MANAG) was also tested in this case. An interaction effect analysis revealed that management level significantly and positively moderates the effect of loss framing on service attractiveness (unstd. $\beta = 1.386, p = 0.004$). The effect on perceived value of service was insignificant, but as crossing only marginally the cut-off p -value 0.05, the result indicates a potential positive moderation effect (unstd. $\beta = 0.866, p = 0.055$). For purchase intention, no such moderation effect was detected (unstd. $\beta = 1.275, p = 0.813$). Therefore, the effect of loss framing has a significantly stronger positive effect on service attractiveness and potentially also on perceived value among higher-level managers than non-managers or 1st level managers.

Discussion: Study 3 examined the effectiveness of loss (vs. gain) framing as a nudge to increase customer acceptance of a free-to-fee price switch as mediated through perceived service attractiveness and service value. Loss framing was found to significantly increase purchase intentions. Mediation effect analysis further revealed that the effect is fully routed through the perceived value of the service. However, the indirect effect via service attractiveness was only marginally insignificant and thus its potential mediation effect should be further verified in future studies. Control variables had no direct effect on the variables. However, management level significantly moderates the effect of loss framing on

Table 6
Effects of control variables and post hoc interaction effect analysis.

DV	IV	t	p	β
PI%	MANAG	1.65	0.100	0.078
	EXPER	-0.44	0.658	-0.021
ATTR	MANAG	-1.02	0.309	-0.073
	EXPER	-1.02	0.309	-0.073
VALUE	MANAG	-0.97	0.334	-0.069
	EXPER	-1.19	0.234	-0.084

Interaction effect	t	p	unstd. β
Loss x Manag → PI%	0.24	0.813	1.275
Loss x Manag → ATTR	2.89	0.004	1.386
Loss x Manag → VALUE	1.94	0.055	0.866

Note: LOSS = loss framing; ATTR = perceived attractiveness; VALUE = perceived value; PI% = purchase intention; EXPER = work experience; MANAG = management level (non-management or 1st level management vs. senior management), unstd. β = unstandardized beta value.

service attractiveness so that higher-level managers perceive the service as more attractive under the loss aversion framing than others. These findings show that loss framing is an effective nudge encouraging customers' free-to-fee transition, particularly through perceived service value, and suggest targeted strategies for higher-level managers.

4.4. Effect sizes of nudges in purified vs. full dataset

For transparency, we report the ANOVA results for the full dataset ($n = 891$), which includes participants who failed the attention check or responded unrealistically quickly (see Table 7).

As shown in Table 7, only two effects remain statistically significant in the full dataset, and the corresponding effect sizes are notably reduced (motive justification $\eta^2 = 0.010^*$; loss framing $\eta^2 = 0.002$; social influence-focused information provision $\eta^2 = 0.014^*$) compared to the purified dataset ($n = 386$), which excludes inattentive or careless respondents. As previously reported, all three effects were significant in the purified dataset, with effect sizes ranging from small (motive justification, $\eta^2 = 0.03$; loss framing, $\eta^2 = 0.02$) to medium (social influence-focused information provision, $\eta^2 = 0.05$) in relation to acceptance of the free-to-fee price. These findings suggest that the behavioral impact of nudges is contingent on respondent attentiveness, with effects ranging from small to medium when the audience is attentive. We discuss the implications of these results in relation to prior research at the end of the theoretical implications section.

5. Conclusions

5.1. Theoretical implications

To our knowledge, this is the first study that empirically examines how industrial service sellers can influence customer price-focused decision-making through behavioral nudges. In doing so, the findings of this study offer novel contributions to the theory and practice of price communication in industrial markets.

First, we contribute to existing service pricing research by explaining how sellers can tackle customer resistance to a free-to-fee price switch (Mustak et al., 2023; Ulaga & Michel, 2018; Witell & Löfgren, 2013) by utilizing choice architectures to nudge customers towards accepting seller-communicated free-to-fee switches (Thaler & Sunstein, 2021). In the long term, underpricing services compared to the value that they provide to customers is not a sustainable approach, and sellers need to enact a free-to-fee switch. However, implementing this switch is difficult (Mustak et al., 2023; Ulaga & Michel, 2018; Witell & Löfgren, 2013) and can have detrimental effects on the customer's fairness perceptions, attitudes towards the seller, and purchase intentions (Cziehso et al., 2019). This is especially so when the free-to-fee switch is unexpected and forced (continued usage is only possible if the fee is paid). Thus, demonstrating how customers can be nudged to accept a free-to-fee switch is an important contribution, as it supports the ability of sellers to navigate the increasingly complex servitization landscape (Favoretto et al., 2022; Gebauer et al., 2021; Kowalkowski et al., 2022) where they must adopt novel pricing models, including subscriptions and freemium pricing models (Cziehso et al., 2019; Kowalkowski & Ulaga, 2024).

Second, the findings of this study also have significance beyond the empirical context of a free-to-fee transition. By demonstrating that B2B buyers respond to seller designed choice architectures that nudge customers towards accepting seller-communicated pricing decisions (Thaler & Sunstein, 2021), we contribute to the nascent stream of B2B pricing research that acknowledges the potential limits of rational and normative frameworks grounded in economic rationality (Hinterhuber & Liozu, 2015; Iyer et al., 2015; Keränen, Kienzler, et al., 2023; Kienzler, 2018; Wirtz & Kowalkowski, 2023). More specifically, by showing how the three tested nudges: motive justification, social influence focused information provision, and the incorporation of a loss (vs. gain) framing influence customer decision-making, we contribute to extant research by showing that customer decision-making is influenced by cognitive biases and decision-making heuristics. This means that B2B buyers leverage other than expected utility-based decision-making criteria in relatively simple price decision-making contexts. We further explain how this behavioral tendency can be purposefully leveraged by the seller through the design of simple and easy to implement nudges to increase customer price acceptance.

Third, our context-specific findings allow us to contribute to the broader ongoing scientific debate on the effectiveness of nudges. Prior meta-analyses in behavioral economics have evaluated nudges through effect sizes, which quantify the magnitude of their influence on decision-making, yet these analyses present divergent conclusions. Some suggest that choice architecture interventions reliably promote behavioral change, albeit with small to medium effect sizes (Hummel & Maedche, 2019; Luo et al., 2023; Mertens et al., 2022), whereas others argue that, once publication bias is addressed, empirical support for nudges largely disappears (Maier et al., 2022; Szaszi et al., 2022). Our findings do not resolve this debate but provide nuanced evidence that aligns with both perspectives: motive justification ($\eta^2 = 0.03$) and loss framing ($\eta^2 = 0.02$) produce small effects, while social influence-focused information provision ($\eta^2 = 0.05$) achieves a medium effect in driving acceptance of the free-to-fee price. Importantly, these effects occur only when inattentive respondents, those failing attention checks or responding unrealistically quickly, are excluded. Analyses of the full dataset reveal substantially weaker effects ($\eta^2 = 0.010^*$ for motive justification, $\eta^2 = 0.002$ for loss framing, and $\eta^2 = 0.014^*$ for social influence-focused information provision). We therefore conclude that at least in some decision-making contexts and among attentive customers, nudges can represent a viable alternative for sellers to influence customer price acceptance. While nudges cannot be regarded as a universal solution to behavioral change (Maier et al., 2022; Szaszi et al., 2022), they are simple and low-cost to implement, which likely favors their continued application among practicing managers.

5.2. Managerial implications

For managers, this study offers several actionable insights on communicating free-to-fee changes and facilitating customer acceptance of new digital service pricing policies. First, our results show that the way managers present free-to-fee changes influences customers' buying decisions. This means that the decision about how to communicate the price change to customers is not trivial and has a significant impact on

Table 7
ANOVA results for full dataset.

Full dataset results ($n = 891$)	Control group	Motive justification	Social influence	Loss aversion
Dataset n	$n = 205$	$n = 233$	$n = 210$	$n = 243$
Mean	66.22	70.70	71.38,	68.50,
SD	21.31	22.38	21.83	25.02
Sig.		$F[1, 437] = 4.57^*$	$F[1, 414] = 5.95^*$	$F[1, 447] = 1.06$
Effect size (η^2)		0.010	0.014	0.002

* $p < 0.05$

customers' willingness to pay. In other words, just simply announcing a new (or higher) service fee without further explanation is likely to generate customer resistance, while strategically framing the price change can enhance customer acceptance and minimize pushback. While the observed effects may not be large, given the simplicity and low implementation cost of behavioral nudges, their adoption in the context of B2B service price switches makes sense.

Second, framing the price increase in terms of fairness (e.g., highlighting the supplier's costs of providing the service), social norms (e.g., stating that other customers have accepted the price change), or loss aversion (e.g., emphasizing that customers will lose service benefits if they do not accept the price change) can make the transition more appealing to buyers. These communication strategies tap into psychological biases, helping customers to perceive the price change as more acceptable.

Third, as our results demonstrate that customers respond more strongly to the idea of potential losses rather than potential gains, it is interesting that value-based selling strategies in B2B markets are focused on highlighting potential monetary gains (e.g., Anderson et al., 2006; Keränen et al., 2021; Terho et al., 2012). Managers who utilize value-based selling approaches could consider crafting loss-based value propositions, especially when negotiating contract renewals. Thus, instead of focusing solely on the potential monetary or operational benefits of (re)purchasing the service contract, managers could highlight the possible negative consequences of not doing so, such as missed productivity gains, increased operational inefficiencies, exposure to additional risks, or any other context-relevant losses. This kind of framing taps into customers' natural aversion to loss, making them more likely to maintain the service relationship.

5.3. Limitations and future research avenues

While this study offers interesting insights into how different cognitive biases influence customers' responses to free-to-fee price switches in B2B markets and how suppliers can use related behavioral nudges to influence price acceptance, it also has some limitations that provide directions for future research.

Prior research has identified 76 decision biases (Carter et al., 2007), and the potential nudges related to them span a wide range (see Hummel & Maedche, 2019; Johnson et al., 2012; Sunstein, 2014; Thaler & Sunstein, 2021). These include “decision information nudges” that focus on the description of alternatives, “decision structure nudges” that target the organization and structure of choice alternatives, and “decision assistance nudges” that focus on reinforcement of behavioral intentions (see Hummel & Maedche, 2019; Johnson et al., 2012; Mertens et al., 2022).

Our study exclusively examined the application of decision information nudges that are relatively straightforward to implement in pricing contexts with a focus on three specific types: motive justification, social influence focused information provision, and loss (vs. gain) framing. In doing so, our purpose was not to discover which choice architecture elements are most effective, but rather to demonstrate that non-utility focused subjective evaluations can influence customer decision-making in the B2B context (Brown et al., 2011; Brown et al., 2012).

We encourage future research to engage in a broader and systematic examination of the applicability of behavioral nudges in different types of B2B decision-making situations to better understand why, under what conditions, and how behavioral nudges affect customer decision-making across the organizational buying context. Meta-analytical classifications of nudges offer a promising foundation for such inquiry as they provide a structured framework to guide future research. Also, field experiments (although challenging to conduct in B2B settings) would provide an effective means to uncover the true effect sizes of nudges. We next outline some specific avenues for future research.

5.3.1. Application of different types and combinations of choice architecture elements

A natural extension of this study would be to systematically test the effectiveness of additional types of nudges that build on different cognitive biases. By using common mediators, it would also be possible to compare the effectiveness of these nudges. Another step could be to study the effectiveness of combining multiple types of nudges. This could be done in the context of B2B service pricing or more broadly in the context of seller-initiated value communication.

For instance, the compromise principle emphasizes that individuals are more likely to choose intermediate options (Simonson, 1989), while the anchoring principle suggests that decisions are often heavily affected by anchor values (Epley & Gilovich, 2006). In the context of a free-to-fee service transition, the compromise effect could be tested by introducing a premium-priced version of the service alongside the basic option and seeing whether positioning the basic option as a middle-ground choice makes it more appealing to customers. The anchoring principle could involve highlighting the underlying equipment costs, which would serve as the price anchor against which the proposed free-to-fee service would appear relatively lower and thus easier to accept.

Alternatively, sellers could consider framing continuation of the service contract as the default option, which the customer must actively choose against if they do not accept the price increase. Defaults are basic building blocks in the design of choice architectures and have been shown to be highly effective as nudges (Thaler & Sunstein, 2021; Goldstein et al., 2008; Beshears & Gino, 2015). When combined with other choice architecture elements, such as motive justification and social influence, customers may be encouraged to continue with the service contract, as this requires the least effort, while motive justification makes the price increase seem fairer, and social influence enhances the ease of justification.

Also, the findings of this study provide interesting contextual avenues for future research that extend beyond the studied empirical context. Mainly, B2B sellers predominantly employ the value-based selling approach, which focuses on communicating to customers the economic gains to be achieved (Keränen, Totzek, et al., 2023; Terho et al., 2012; Terho et al., 2017). However, based on the findings, framing value communication around economic gains may not be as effective as emphasizing what the customer stands to lose by not buying.

5.3.2. The contextual conditions that influence the effectiveness of seller-designed nudges

As the findings of our study indicate that the management level moderated nudge effectiveness in studies 1 and 3, future research could probe this dynamic further, which may help to extend prior research suggesting that the area of responsibility (Anderson & Wynstra, 2010) and organizational role (Macdonald et al., 2016) affects how business customers make purchasing decisions and evaluate value. The moderating effects that we observed could stem from rational reasons, such as senior managers being accountable for broader business outcomes, which could make them more susceptible to nudges that draw attention away from the service price increase and highlight other issues, such as the loss of service benefits that expose the company to the risk of financial losses or operational difficulties.

Another explanation could be the need for B2B decision-makers higher in the organizational hierarchy to conserve limited cognitive resources by reverting to system 1 thinking (Ceschi et al., 2019). More specifically, there are different ways to process information and to make decisions, described as system 1 and system 2 thinking (Evans & Stanovich, 2013; Smith & DeCoster, 2000). System 2 is slow, logical, and deliberate. System 1 thinking is automatic, instinctive, and emotional, and relies on mental shortcuts to arrive at intuitively appealing and fast decisions, which leads to violations in information processing compared to standard economic models (DellaVigna, 2009; Dowling et al., 2020). While system 1 often provides good-enough solutions through intuition and rules of thumb, it is also prone to cognitive biases that can lead to

suboptimal decisions. In these situations, the use of choice architectures would affect people's choices (Simonson, 2008), thereby making them more susceptible to nudges. Future research could delve deeper into these dynamics to better understand the conditions under which different types of B2B decision-makers are more susceptible to seller-designed nudges.

Beyond the characteristics of the decision-maker, the nature of the decision-making situation is likely to matter. For instance, contextual factors like the complexity of the offering (simple product vs. complex solution) or its importance to the customer's success (non-critical vs. essential) can influence the customer's decision-making process. More specifically, when the offering is complex, high-value, or significantly impacts the customer's performance, the decision-making process is likely to be more thorough and rational, reducing the influence of seller-designed nudges. Thus, in the context of selling advanced services and solutions (Salonen, 2011; Tuli et al., 2007), seller-designed nudges that rely on cognitive biases may be less effective. However, in the context of more basic services, for instance, subscription-based services (Kowalkowski et al., 2022; Kowalkowski & Ulaga, 2024), customer decision-making is likely to be more straightforward and hence more susceptible to decision-making heuristics. Also, the availability of alternatives can encourage more deliberate consideration by the decision-maker. This may potentially diminish the effectiveness of nudges in encouraging customer acceptance of a free-to-fee switch. Future studies could investigate these moderating conditions in greater detail.

Funding information

The authors gratefully acknowledge the Foundation for Economic Education (grant number 230387) in supporting the financing of data collection. The funding source had no involvement in conducting, preparing, or publishing the research reported herein.

CRedit authorship contribution statement

Joona Keränen: Writing – review & editing, Writing – original draft, Project administration, Funding acquisition, Conceptualization. **Anna Salonen:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Funding acquisition, Conceptualization. **Harri Terho:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Conceptualization. **Juha Munnukka:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization.

References

- Abbey, J. D., & Meloy, M. G. (2017). Attention by design: Using attention checks to detect inattentive respondents and improve data quality. *Journal of Operations Management*, 53, 63–70.
- Anderson, J. C., Narus, J. A., & Van Rossum, W. (2006). Customer value propositions in business markets. *Harvard Business Review*, 84(3), 90.
- Anderson, J. C., & Wynstra, F. (2010). Purchasing higher-value, higher-price offerings in business markets. *Journal of Business-to-Business Marketing*, 17(1), 29–61.
- Arslanagic-Kalajdzic, M., & Zabkar, V. (2017). Is perceived value more than value for money in professional business services? *Industrial Marketing Management*, 65, 47–58.
- Asch, S. E. (1955). Opinions and social pressure. *Scientific American*, 193(5), 31–35.
- Bateman, I., Munro, A., Rhodes, B., Starmer, C., & Sugden, R. (1997). A test of the theory of reference-dependent preferences. *The Quarterly Journal of Economics*, 112(2), 479–505.
- Bergkvist, L., & Rossiter, J. R. (2007). The predictive validity of multiple-item versus single-item measures of the same constructs. *Journal of Marketing Research*, 44(2), 175–184.
- Beshears, J., & Gino, F. (2015). *Leaders as decision architects* (pp. 1–12). May: Harvard Business Review.
- Boyd, D. E., Sese, F. J., & Tillmanns, S. (2023). The design of B2B customer references: A signaling theory perspective. *Journal of the Academy of Marketing Science*, 51(3), 658–674.
- Brown, B. P., Zablah, A. R., Bellenger, D. N., & Donthu, N. (2012). What factors influence buying center brand sensitivity? *Industrial Marketing Management*, 41, 508–520.
- Brown, B. P., Zablah, A. R., Bellenger, D. N., & Johnston, W. J. (2011). When do b2b brands influence the decision making of organizational buyers? An examination of the relationship between purchase risk and brand sensitivity. *International Journal of Research in Marketing*, 28, 194–204.
- Carter, C. R., Kaufmann, L., & Michel, A. (2007). Behavioral supply management: A taxonomy of judgment and decision-making biases. *International Journal of Physical Distribution and Logistics Management*, 37(8), 631–669.
- Ceschi, A., Costantini, A., Sartori, R., Weller, J., & Di Fabio, A. (2019). Dimensions of decision-making: An evidence-based classification of heuristics and biases. *Personality and Individual Differences*, 146, 188–200.
- Cziehso, G. P., Schaeffers, T., & Kukar-Kinney, M. (2019). Free no more—investigating customer reactions to unexpected free-to-fee switches. *Journal of Business Research*, 101, 229–242.
- DellaVigna, S. (2009). Psychology and economics: Evidence from the field. *Journal of Economic Literature*, 47, 315–372.
- Dowling, K., Guhl, D., Klapper, D., Spann, M., Stich, L., & Yegoryan, N. (2020). Behavioral biases in marketing. *Journal of the Academy of Marketing Science*, 48(3), 449–477.
- Epley, N., & Gilovich, T. (2006). The anchoring-and-adjustment heuristic: Why the adjustments are insufficient. *Psychological Science*, 17(4), 311–318.
- Evans, J. S. B., & Stanovich, K. E. (2013). Dual-process theories of higher cognition: Advancing the debate. *Perspectives on Psychological Science*, 8(3), 223–241.
- Favoretto, C., Mendes, G. H., Oliveira, M. G., Cauchick-Miguel, P. A., & Coreynen, W. (2022). From servitization to digital servitization: How digitalization transforms companies' transition towards services. *Industrial Marketing Management*, 102, 104–121.
- Fehr, E., Naef, M., & Schmidt, K. M. (2006). Inequality aversion, efficiency, and maximin preferences in simple distribution experiments: Comment. *American Economic Review*, 96(5), 1912–1917.
- Gebauer, H., Paiola, M., Saccani, N., & Rapaccini, M. (2021). Digital servitization: Crossing the perspectives of digitization and servitization. *Industrial Marketing Management*, 93, 382–388.
- Goldstein, D. G., Johnson, E. J., Herrmann, A., & Heitmann, M. (2008). Nudge your customers toward better choices. *Harvard Business Review*, 86(12), 99–105.
- Grewal, D., Hardesty, D. M., & Iyer, G. R. (2004). The effects of buyer identification and purchase timing on consumers' perceptions of trust, price fairness, and repurchase intentions. *Journal of Interactive Marketing*, 18(4), 87–100.
- Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Publications.
- Hinterhuber, A. (2015). Violations of rational choice principles in pricing decisions. *Industrial Marketing Management*, 47, 65–74.
- Hinterhuber, A., & Liozu, S. M. (2015). Editorial - behavioral and psychological aspects of b2b pricing. *Industrial Marketing Management*, 47, 4–5.
- Hummel, D., & Maedche, A. (2019). How effective is nudging? A quantitative review on the effect sizes and limits of empirical nudging studies. *Journal of Behavioral and Experimental Economics*, 80, 47–58.
- Husemann-Kopetzky, M., Eggert, A., Ulaga, W., & Steiner, M. (2025). Understanding the role of (dual) entitlement effects on industrial customers' willingness-to-pay for ancillary services. *SMR-Journal of Service Management Research*, 8(2), 94–114.
- Iyer, G. R., Xiao, S. H., Sharma, A., & Nicholson, M. (2015). Behavioral issues in price setting in business-to-business marketing: A framework for analysis. *Industrial Marketing Management*, 47, 6–16.
- Johnson, E. J., Shu, S. B., Dellaert, B. G., Fox, C., Goldstein, D. G., Häubl, G., & Weber, E. U. (2012). Beyond nudges: Tools of a choice architecture. *Marketing Letters*, 23, 487–504.
- Kahneman, D. (1991). Article commentary: Judgment and decision making: A personal view. *Psychological Science*, 2(3), 142–145.
- Kahneman, D., Knetsch, J. L., & Thaler, R. (1986b). Fairness as a constraint on profit seeking: Entitlements in the market. *The American Economic Review*, 728–741.
- Kahneman, D., Knetsch, J. L., & Thaler, R. H. (1986a). Fairness and the assumptions of economics. *Journal of Business*, S285–S300.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: an analysis of decision under risk. *Econometrica*, 47(2), 263–292.
- Keränen, J., Kienzler, M., Salonen, A., Terho, H., & Totzek, D. (2023). Gain-sharing in performance-based contracting: How risk and fairness drive business customers' willingness-to-switch to a gain-sharing arrangement. *Industrial Marketing Management*, 115, 172–184.
- Keränen, J., Salonen, A., & Terho, H. (2024). Gain-sharing arrangements in value-based pricing: Economic and behavioral perspectives. In *Elgar Encyclopedia of pricing* (pp. 86–92). Edward Elgar Publishing.
- Keränen, J., Terho, H., & Saurama, A. (2021). Three ways to sell value in B2B markets. *MIT Sloan Management Review*, 63(1).
- Keränen, J., Totzek, D., Salonen, A., & Kienzler, M. (2023). Advancing value-based selling research in B2B markets: A theoretical toolbox and research agenda. *Industrial Marketing Management*, 111, 55–68.
- Kienzler, M. (2018). Value-based pricing and cognitive biases: An overview for business markets. *Industrial Marketing Management*, 68, 86–94.
- Kowalkowski, C., Bigdeli, A. Z., & Baines, T. (2022). Guest editorial: The future of servitization in a digital era. *Journal of Service Management*, 33(1), 59–69.
- Kowalkowski, C., & Ulaga, W. (2024). Subscription offers in business-to-business markets: Conceptualization, taxonomy, and framework for growth. *Industrial Marketing Management*, 117, 440–456.
- Levin, I. P., Schneider, S. L., & Gaeth, G. J. (1998). All frames are not created equal: A typology and critical analysis of framing effects. *Organizational Behavior and Human Decision Processes*, 76(2), 149–188.
- Liozu, S. M. (2013). Irrational pricing decisions in organizations. *Journal of Professional Pricing*, Q2, 13–19.

- Luo, Y., Li, A., Soman, D., & Zhao, J. (2023). A meta-analytic cognitive framework of nudge and sludge. *Royal Society Open Science*, 10(11), Article 230053.
- Macdonald, E. K., Kleinaltenkamp, M., & Wilson, H. N. (2016). How business customers judge solutions: Solution quality and value in use. *Journal of Marketing*, 80(3), 96–120.
- Maier, M., Bartoš, F., Stanley, T. D., Shanks, D. R., Harris, A. J., & Wagenmakers, E. J. (2022). No evidence for nudging after adjusting for publication bias. *Proceedings of the National Academy of Sciences*, 119(31), Article e2200300119.
- Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods*, 17(3), 437.
- Mertens, S., Herberz, M., Hahnel, U. J., & Brosch, T. (2022). The effectiveness of nudging: A meta-analysis of choice architecture interventions across behavioral domains. *Proceedings of the National Academy of Sciences*, 119(1), Article e2107346118.
- Monroe, K. B., Rikala, V. M., & Somervuori, O. (2015). Examining the application of behavioral price research in business-to-business markets. *Industrial Marketing Management*, 47, 17–25.
- Mustak, M., Ulaga, W., Grohmann, M., & von Wangenheim, F. (2023). Free-to-fee transformation of industrial services. *Journal of Service Research*, 26(1), 21–43.
- Pauwels, K., & Weiss, A. (2008). Moving from free to fee: How online firms market to change their business model successfully. *Journal of Marketing*, 72(5), 14–31.
- Pieringer, E. C., & Totzek, D. (2022). Agency problems in solution selling: How customer perceptions of opportunism and customer characteristics impede their acceptance of outcome-based pricing. *Industrial Marketing Management*, 106, 279–291.
- Raddats, C., Naik, P., & Bigdeli, A. Z. (2022). Creating value in servitization through digital service innovations. *Industrial Marketing Management*, 104, 1–13.
- Ritala, P., Keränen, J., Fishburn, J., & Ruokonen, M. (2024). Selling and monetizing data in B2B markets: Four data-driven value propositions. *Technovation*, 130, Article 102935.
- Saab, A. B., & Botelho, D. (2020). Are organizational buyers rational? Using price heuristics in functional risk judgment. *Industrial Marketing Management*, 85, 141–151.
- Salonen, A. (2011). Service transition strategies of industrial manufacturers. *Industrial Marketing Management*, 40(5), 683–690.
- Simonson, I. (1989). Choice based on reasons: The case of attraction and compromise effects. *Journal of Consumer Research*, 16, 158–174.
- Simonson, I. (2008). Will I like a medium pillow? Another look at constructed and inherent preferences. *Journal of Consumer Psychology*, 18, 155–169.
- Smith, E. R., & DeCoster, J. (2000). Dual-process models in social and cognitive psychology: Conceptual integration and links to underlying memory systems. *Personality and Social Psychology Review*, 4(2), 108–131.
- Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, 87(3), 355–374.
- Spence, M. (2002). Signaling in retrospect and the informational structure of markets. *The American Economic Review*, 92(3), 434–459.
- Steiner, M., Eggert, A., Ulaga, W., & Backhaus, K. (2016). Do customized service packages impede value capture in industrial markets? *Journal of the Academy of Marketing Science*, 44(2), 151–16.
- Sunstein, C. R. (2014). Nudging: A very short guide. *Journal of Consumer Policy*, 37, 583–588.
- Szaszi, B., Higney, A., Charlton, A., Gelman, A., Ziano, I., Aczel, B., Goldstein, D., Yeager, D., & Tipton, E. (2022). No reason to expect large and consistent effects of nudge interventions. *Proceedings of the National Academy of Sciences*, 119(31), Article e2200732119.
- Terho, H., Eggert, A., Ulaga, W., Haas, A., & Böhm, E. (2017). Selling value in business markets: Individual and organizational factors for turning the idea into action. *Industrial Marketing Management*, 66, 42–55.
- Terho, H., Haas, A., Eggert, A., & Ulaga, W. (2012). 'It's almost like taking the sales out of selling'—Towards a conceptualization of value-based selling in business markets. *Industrial Marketing Management*, 41(1), 174–185.
- Thaler, R. (1980). Toward a positive theory of consumer choice. *Journal of Economic Behavior & Organization*, 1(1), 39–60.
- Thaler, R. (1985). Mental accounting and consumer choice. *Marketing Science*, 4(3), 199–214.
- Thaler, R. H., & Sunstein, C. R. (2021). *Nudge: The* (final ed.). Yale University Press.
- Tuli, K. R., Kohli, A. K., & Bharadwaj, S. G. (2007). Rethinking customer solutions: From product bundles to relational processes. *Journal of Marketing*, 71(3), 1–17.
- Tversky, A. (1975). A critique of expected utility theory: Descriptive and normative considerations. *Erkenntnis*, 163–173.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases: Biases in judgments reveal some heuristics of thinking under uncertainty. *Science*, 185(4157), 1124–1131.
- Ulaga, W., & Michel, S. (2018). Bill it, kill it, or keep it free? *MIT Sloan Management Review*, 60(1), 1–8.
- Ulaga, W., & Reinartz, W. J. (2011). Hybrid offerings: How manufacturing firms combine goods and services successfully. *Journal of Marketing*, 75(6), 5–23.
- Viglia, G., Zaefarian, G., & Ulqinaku, A. (2021). How to design good experiments in marketing: Types, examples, and methods. *Industrial Marketing Management*, 98, 193–206.
- Weber, E. U., Anderson, C. J., & Birnbaum, M. H. (1992). A theory of perceived risk and attractiveness. *Organizational Behavior and Human Decision Processes*, 52(3), 492–523.
- Wirtz, J., & Kowalkowski, C. (2023). Putting the “service” into B2B marketing. *The Journal of Business and Industrial Marketing*.
- Witell, L., & Löfgren, M. (2013). From service for free to service for a fee: Business model innovation in manufacturing firms. *Journal of Service Management*, 24(5), 520–533.
- Woodside, A. G. (2015). The general theory of behavioral pricing: Applying complexity theory to explicate heterogeneity and achieve high-predictive validity. *Industrial Marketing Management*, 47, 39–52.
- Yang, Y., Vosgerau, J., & Loewenstein, G. (2013). Framing influences willingness to pay but not willingness to accept. *Journal of Marketing Research*, 50(6), 725–738.