

“Good” and “bad” frictions in customer experience: Conceptual foundations and implications

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Abstract

Businesses often strive for frictionless customer experiences, assuming that customers always desire seamless interactions. However, recent academic and practitioner discussions suggest that not all forms of friction are detrimental. Reconciling the conflicting views, we propose a framework that defines friction as simply the effort customers exert to complete tasks related to their consumption goals. Furthermore, drawing from the goal striving theory and customer experience literature, we identify and propose four types of friction based on dimensions of task desirability and task value: frustrating, constructive, preference-based, and rewarding. Our framework challenges the prevailing business practice of eliminating all friction, as evidenced by a topic modeling analysis of announcements related to achieving frictionless customer experiences. Instead, we posit that while frustration friction should be minimized, the other three types of friction offer opportunities for businesses to enhance customer value. Particularly, we caution managers that eliminating constructive friction (i.e., customer effort in low-desirability, high-value tasks) may hinder value creation. We also recommend that managers find opportunities to infuse rewarding and preference-based friction to enhance customer experience. By understanding these nuances, businesses can strike a balance between friction reduction and value optimization in their customer experience designs.

KEYWORDS

customer effort, customer experience management, customer journey, friction in customer experience, frictionless customer experience

1 | INTRODUCTION

Amazon Go is a physical grocery store where shoppers can just pick an item and walk out without the need to go through the checkout process (Sweeney, 2023). Like Amazon, many other companies have also started to focus their efforts on developing strategies to remove friction such as waiting at checkout, scanning the products, and making payments with the goal of enhancing customer experience.

The word *friction* first entered the handbooks of “new age” customer experience designers in 1995. That year, Bill Gates, with Nathan Myhrvold and Peter Rinearson, outlined the idea of “friction-free capitalism” in their bestselling book *The Road Ahead* as follows:

The information highway will extend the electronic marketplace and make it the ultimate go-between, the universal middleman. Often the only humans involved in a transaction will be the actual buyer and seller. All

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the goods for sale in the world will be available for you to examine, compare, and, often, customize. [...] Information about vendors and their products will be available to any computer connected to the highway. [...] This will carry us into a new world of low friction, low-overhead capitalism, in which market information will be plentiful and transaction costs low. ***It will be a shopper's heaven*** (Gates et al., 1995, p. 158).

Their vision describes a new paradigm in customer experience where customers are required to expend little to no effort in their purchase journey with the support of digital technologies. Many have since joined the chorus of Gates & Co, with some even underscoring that frictionless customer experience will take over customer delight and become the new battleground for customer loyalty (e.g., Dixon et al., 2010, 2013). Two and a half decades after *The Road Ahead* was first published, the vision of the technology-enabled frictionless customer experience is yet to be fully realized. However, thanks to technological advances—particularly in the domains of computing, communication networks, and Artificial Intelligence (AI), frictionless customer experience seems to be right around the corner. Netflix's "Play Something," Amazon's Amazon Go stores, IKEA's augmented reality-based Place App, Google Voice Assistant, and the increasing business adoption of service robots and AI-based chatbots are illustrations of how customer experience innovations can eliminate whatever little friction remains in the customer journey.

However, the benefit of offering frictionless customer experiences has recently been called into question. For example, John Maeda, Vice President of Design and AI at Microsoft, argues that frictionless customer experience is a paradox. While it can be beneficial, it is also, by definition, unmemorable (Maeda, 2019). This view is supported by the findings of a global study by IFS, an enterprise software specialist, that 82% of customers were unable to recall a single positive example of frictionless customer experience (Writer, 2021). Too little friction may lead consumers to think less about their decisions and be more ambivalent about the purchase and the brand, leading to lowered brand connection and loyalty (Bertini et al., 2024). The increasing adoption of automation and AI in smoothing the customer journey also raises concerns about the capabilities of such technologies to breach customers' data privacy and manipulate them into entering the business (Gosline, 2023), even when these decisions may not be in customers' best interests (Hunold et al., 2020; Wirtz et al., 2023). Adding to these diverging views on frictionless customer experience, some findings in the literature suggest that, in some conditions, customer effort may, in fact, lead to positive outcomes (e.g., Mustak et al., 2016; Norton et al., 2012; Prahalad & Ramaswamy, 2004).

Such contradictions not only question the nature, magnitude, and relevance of the supposed paradigm shift toward frictionless customer experience but also imply that some creations and dissemination of customer experience innovations might be counterproductive and wasteful. We argue that the contradictions around

frictionless customer experience are due to a limited conceptual understanding of friction in the context of customer experience. That is, while in some cases, customers prefer frictionless experiences to save effort, friction should not simply be considered all bad. A deeper understanding requires taking a customer-centric view and deciphering how customers interpret friction. This will help identify key dimensions underlying friction, based on which a meaningful classification of friction. Our aim in this study, therefore, is to consolidate divergent views and develop a conceptual underpinning of frictionless customer experience. To do so, we analyze customer journeys from the lens of goal-striving theory, as customer journeys are motivated by customers' concrete consumption goals (Hamilton & Price, 2019). Specifically, in our analysis guided by goal-striving theory, we address the following four guiding research questions: (1) What is the conceptual definition of friction in the context of customer experience? (2) How can friction in customer experience be conceptually classified into different types? (3) What type of friction can impede or improve customer experience? and (4) What are the key contingency factors that determine the role friction plays in customer experience? The answers to these four questions will allow a reconciliation of the existing findings in the literature. From a managerial point of view, our framework enables businesses to identify the various types of friction in their customer experience and enhance it by not only focusing on removing "bad friction" but also exploring opportunities to create "good friction" to offer additional customer value.

We contribute to the literature on customer experience in several substantial ways. First, we resolve the debates in the literature on the positive and negative outcomes of friction in customer experience by providing a conceptual definition of friction and highlighting that friction is simply a characteristic of the goal-related tasks in the customer journey. Second, we propose two conceptual characteristics of goal-related tasks—task desirability and task value—and identify four types of friction based on these two dimensions. This allows us to meaningfully categorize "good" and "bad" friction based on the type of goal-related tasks. Third, despite the considerable attention paid to conceptualizing the customer journey (Følstad & Kvale, 2018; Tueanrat et al., 2021) and customer experience (Becker & Jaakkola, 2020; Mahr et al., 2019) as a whole, research on conceptually defining and comparing different types of touchpoints and developing a nuanced understanding of friction has not received sufficient attention. A notable exception is Holz et al. (2023), providing the first experiential pain points classification. Our research further addresses this gap by offering a conceptual classification of friction.

Based on our conceptual advancement of friction and its typology, we make straightforward managerial implications to businesses that aim to create customer value by enhancing customer experience. Specifically, from a topic modeling study that analyzes 66 company announcements discussing their efforts to provide a frictionless customer experience between 2016 and 2020, we identify six aspects of customer experience firms were targeting to minimize or eliminate friction. The findings suggest that businesses have been single-mindedly removing frictions from tasks of low desirability.

However, among the six aspects also exist tasks with high task value. Eliminating friction in these tasks may cause negative customer outcomes and lead businesses to miss opportunities to create additional customer value. In light of this finding, our conceptual framework offers important and novel insights to businesses, helping them understand how and when to create and remove friction in the customer journey. In addition, we identify key contingency factors that can influence customers' assessment and categorization of friction, which offer additional nuanced recommendations for business practices.

2 | CONCEPTUAL BACKGROUND

2.1 | Defining friction in customer experience

As our focus is on friction in the customer experience during the customer journey, we first need to define what customer journey and customer experience are. Building on prior research, we define a customer journey as the process the customers undergo, encompassing all stages and touchpoints with an organization (Lemon & Verhoef, 2016), *motivated by concrete consumption goals* (Hamilton & Price, 2019). Simply put, a customer journey is the process of a customer's pursuit of a specific consumption goal. During this goal pursuit, a customer is exposed to a series of touchpoints (e.g., visiting the firm's website), where customers complete various goal-related tasks (e.g., gathering information about the product) in service of the overall consumption goal (e.g., purchasing the product).

Customer experience is conceptualized as *a customer's non-deliberate, spontaneous responses and reactions to offering-related stimuli residing within and outside firm-controlled touchpoints along the customer journey* (Becker & Jaakkola, 2020). Customer experience, thus, comprises customers' responses that are internal and subjective when they come into any direct or indirect contact with the company and can be related to their sensory, affective, cognitive, physical, and social identity (Lemon & Verhoef, 2016; Meyer & Schwager, 2007). While a customer journey covers a sequential collection of touchpoints (Voorhees et al., 2017), all touchpoints contribute to the overall customer experience (Lemon & Verhoef, 2016).

Building on the perspective that a customer journey is a process of customers' consumption goal pursuit by performing various goal-related tasks at different touchpoints across all stages of the customer journey, we argue that the cumulative experiences in these tasks shape the overall customer experience. Journeys in which touchpoint tasks cannot be completed quickly and easily will slow down the customers' consumption goal pursuit or even prevent them from attaining their goals; these tasks are considered as creating friction. Analogously, in the field of Physics, friction is defined as the force resisting the motion of an object along a surface (Krim, 2012). Imagine pushing a carton box containing books across a smooth, polished surface (e.g., tiled or wooden floors) and pushing the same box across a rough surface (e.g., carpeted floor). In the latter case, one must push harder and exert greater effort due to higher friction.

Building on these views and the definition of customer experience, we could consider friction in customer experience as the force existing within a goal-related task that resists a customer's progress along the customer journey.

To understand friction in customer experience, imagine a customer who is on the journey of booking a flight and is searching for information about different options. At this stage, this customer has the goal of gathering information on the flight schedules and prices to facilitate their decision-making. If this customer needs to search for information across different platforms and sources and tries to compare the information presented in different formats, it requires a high level of effort, and thus, this task has high friction. Instead, offering this customer accurate and up-to-date information in an easy-to-compare way can reduce the effort from the customer, thus reducing friction. Now imagine another customer who has the consumption goal of getting fit by going to the gym. This customer will exert effort by attending gym classes, joining a personal training session, or just spending some time running on the treadmill. Completing these tasks also requires effort, and these tasks can be considered friction in the customer experience. However, it is not necessary to remove such friction as effort is vital for customers to achieve their consumption goals. Therefore, we argue that in the context of customer experience, friction increases the demand for customer effort, which includes the physical, mental, and financial resources expended toward a consumption goal (Cardozo, 1965). In other words, friction reflects the amount of effort required from customers in completing a goal-related task, but it does not reflect the necessity of that effort. Formally, we define friction in customer experience as *the customer effort required to complete a goal-related task to progress along the customer journey*.

It is worth comparing friction with pain points in the customer journey and separating the two concepts. Pain points are defined as issues or challenges that negatively impact customer experience (Holz et al., 2023; Kranzbühler et al., 2019). Therefore, pain points are negative experiences, such as overly long waiting time and unfriendly service encounters (Holz et al., 2023). Although friction may also cause negative experiences, such as creating obstacles for customers to move forward in the customer journey, friction itself does not mean good or bad. It simply is a characteristic of the experience when completing a goal-related task. A customer can experience varying degrees of friction when completing a goal-related task, depending on the nature of the task and the level of automation involved. However, as we will illustrate next, the outcome of friction is not always negative; it can also result in positive experiences. Thus, while pain points can be seen as a type of friction that can lead to negative outcomes, friction goes beyond pain points and can render positive outcomes.

2.2 | Consequences of friction in customer experience

Hoyer et al. (2020) make a strong case for how new digital technologies will transform customer experience across the customer

journey. For instance, the authors argue that digital technologies such as Internet of Things (IoT), Augmented Reality (AR), Virtual Reality (VR), and AI can enable customers to (1) access rich, detailed, and relevant information; (2) better visualize product use; (3) make better decisions; (4) automate or delegate tasks; and (5) receive instant and personalized help, support, and feedback.

Given the potential benefits of technology-enabled frictionless customer experience, it is not surprising that frictionless customer experience has become the “hall-of-fame” buzzword in the digital era (Small Planet, 2020), dominating discussions at industry summits. For example, Bird (2019) writes that frictionless customer experience was the buzzword that dominated the 2019 National Retail Foundation Big Show, so much so that he would be a “very rich man” if he had a dollar for every mention of the word “frictionless.” However, does greater customer effort to overcome friction always lead to negative outcomes? Prior literature on friction and customer effort offers mixed findings, which we will discuss next.

2.2.1 | Negative outcomes of friction

In support of the relentless pursuit of frictionless customer experience in practice, the dominant view in the customer experience literature too is that friction must be eliminated to improve customer experience (e.g., Dixon et al., 2010; Edelman & Singer, 2015; Kuehnl et al., 2019; Lemon & Verhoef, 2016). This is because allowing customers to execute goal-related tasks in a customer journey quickly and easily is an essential foundation of a “sticky journey”—journeys that are more likely to draw in and permanently capture customers (e.g., Edelman & Singer, 2015). Friction in the form of pain points along the customer journey can lead to negative emotions (Holz et al., 2023), and the increased customer effort can reduce the effectiveness of the customer journey (Kuehnl et al., 2019). Even when customers choose to invest effort themselves (e.g., in co-creation), failing to perform well can lead to negative emotions like guilt (Heidenreich et al., 2015).

Findings in the domain of judgment and decision-making also indicate a negative relationship between effort and customer outcomes. For example, when customers experience choice overload, they may defer their decisions (e.g., Chernev, 2003; Iyengar & Lepper, 2000). Novemsky et al. (2007) investigate the effect of “preference fluency” (i.e., the perceived effort required to form a preference for an option) on choice and find that decisions with less perceived fluency (i.e., greater effort) increase choice deferral and selection of a compromise option. Similarly, decisions requiring significant effort in the form of deliberation and information acquisition can also increase the likelihood of choice deferral (e.g., Dhar, 1997) and the selection of a compromise option (e.g., Kivetz et al., 2004). Furthermore, customers facing difficulty in decisions may also be less satisfied and confident with their choices (Botti & Iyengar, 2004; Diehl & Poynor, 2010).

Research in the domain of motivational science further corroborates that people engage in “effort discounting”—that is, they

discount the goal value by the amount of effort required to obtain the goal (Chong et al., 2017; Pessiglione et al., 2018; Sugiwaka & Okouchi, 2004; Zeng & Murali, 2021). In the context of customer experience, effort discounting may, therefore, imply that people will likely value effortful experiences less than effortless experiences, which supports the argument for offering frictionless customer experience. The effort discounting phenomenon is consistent with the economic view of effort as a cost, popularly known as the “law of less work” (Hull, 1943), which posits that people aim to minimize effort—both physical (Hull, 1943) and cognitive (Kool et al., 2010; Shenhav et al., 2017). Together, these findings may seem to suggest that customers may prefer customer journeys involving less (vs. more) friction.

2.2.2 | Positive outcome of friction

Despite the abundant evidence showing the negative outcomes of friction, prior research has also documented positive outcomes of customer effort in various forms (please see Table 1 for a summary of contradictory findings). For example, recent research suggests that in AI-driven customer journeys, human agency (i.e., customer effort and deliberation) can improve decision quality (Gosline, 2023), and slowing down the purchase process can improve customer satisfaction and loyalty in the long run (Bertini et al., 2024). Findings in several other domains also indicate a positive relationship between friction and customer outcomes. These include customers engaging in do-it-yourself (DIY) tasks (Norton et al., 2012), customer participation (Mustak et al., 2016; Prahalad & Ramaswamy, 2004), and customer co-creation (Payne et al., 2009; Wind & Rangaswamy, 2001; Ramaswamy & Ozcan, 2018). These findings point to the benefits of having friction as a part of the customer experience.

“The IKEA Effect” (Mochon et al., 2012; Norton et al., 2012), for example, suggests that customer effort involved in “do-it-yourself” (DIY) type of offerings can increase how much a customer values the offerings due to their own labor contribution. This positive outcome of customer effort can be explained by the cognitive dissonance, effort justification theory, and self-perception theory (Axsom & Cooper, 1985; Bem, 1967; Cooper, 2007; Festinger, 1957), which all point to the fact that objects obtained through effort are liked more (Norton et al., 2012). For example, people value money earned through effort (vs. windfall gain) more and are less willing to share with others (Arkes et al., 1994; Loewenstein & Issacharoff, 1994; Muehlbacher & Kirchner, 2009). Further, research on customer co-creation (e.g., Edvardsson et al., 2005, 2012; Zomerdiijk & Voss, 2010), a form of customer effort where customers invest their resources to design the offering jointly with the firm, suggests a positive relationship between co-creation and customer experience.

Furthermore, perceived effort can also increase the perceived meaningfulness of the goal serviced by the effort (Olivola & Shafir, 2013). Simply put, effort induces a greater liking for the outcome of one’s effort. In the context of the customer experience,

TABLE 1 Summary of diverging views on the impact of customer effort and friction on customer experience.

Domain	Sample studies	Key finding	Impact on customer experience
Customer co-creation	Heidenreich et al. (2015)	Customer effort in co-creation, in case of failure, can increase guilt.	Negative
	Mustak et al. (2016)	Customer's effort in co-creation and participation improves customer value creation process.	Positive
	Prahalad and Ramaswamy (2004)		
	Payne et al. (2009)		
	Ramaswamy and Ozcan (2018)		
Holmqvist et al. (2020)			
Customer journey	Dixon et al. (2010)	Customer effort reduces customer experience stickiness and customer loyalty.	Negative
	Edelman and Singer (2015)		
	Holz et al. (2023)	Customers encountering pain points along the customer journey can lead to negative emotions.	Negative
	Kuehnl et al. (2019)	Customer effort reduces customer journey effectiveness.	Negative
	Gosline (2023)	Introducing customer effort to enhance human agency and autonomy can improve choice in AI-driven customer journeys.	Positive
Bertini et al. (2024)	Slowing down the purchase process can boost satisfaction and loyalty.	Positive	
Customization	Norton et al. (2012)	The "IKEA" effect: customers value their creation more.	Positive

Abbreviation: AI, artificial intelligence.

these theories thus predict the possibility that friction can also create a positive outcome. Moreover, when the core offering of the service or product is to facilitate consumers' goal pursuit, such as in fitness (e.g., gym), learning (e.g., language learning app), or winning a game (e.g., escape room), customers' effort is inherently required as it is instrumental for customers to achieve their goals. Thus, the friction in consuming these types of products or services is expected and necessary and should lead to positive customer experiences. In luxury consumption, consumers are also motivated to exert effort in consuming luxury experiences to escape from the everyday mundane and into pleasurable moments (Cova et al., 2018), which is coined as hedonic escapism (Holmqvist et al., 2020). Such a motivation to escape can even drive consumers to exert effort to engage in the value co-creation process with luxury service providers (Holmqvist et al., 2020).

Overall, prior literature across disciplines points to both negative and positive outcomes of effort and friction. Therefore, in the context of customer experience, the dominant view that there is a negative relationship between friction and customer experience is questionable.

2.3 | Using goal striving theory to reconcile the contradictory findings

The contradictory findings point to the fact that friction is fundamentally different from negative outcomes such as pain points, frustrations, and service failures. Resistance forces in nature, such as friction, can indeed make the task of moving a heavy box along a

rough surface more effortful; however, they can also act as essential control mechanisms that help us walk, drive, and enjoy other recreational activities like skiing. In a similar vein, while friction in customer experience may make the customer journey more effortful, its outcome can also be positive, depending on the nature of the goal-related task.

As we conceptualize friction as the effort required to complete goal-related tasks in a customer journey, we will use goal-related tasks as the unit of analysis and goal-striving theory to inform customers' interpretation of the friction in those tasks. Goal striving theory states that consumers use goals to direct their behaviors (Locke & Latham, 1990). The mechanism of the goal involves three attributes: it directs the activity toward actions that are relevant to the goal, it regulates the effort or energy required to the difficulty level of the task related to the goal, and it affects the persistence or duration of performing the task related to the goal (Locke & Latham, 1990). Related to the context of customer experience, the consumption goal in the customer journey will regulate the tasks that consumers are willing to take based on their relevance to the goal, but it will also determine the effort levels of completing those goal-related tasks. According to our theorizing, consumers' assessments of friction (i.e., effort in the goal-related tasks) will be guided by the consumption goal.

In goal-striving theory literature, the forces preventing people from attaining their goals are referred to as obstacles (Marguc et al., 2011). However, the views on obstacles are also mixed. Despite that obstacles have been found to significantly reduce the likelihood of goal attainment and increase goal failure (e.g., Hofmann et al., 2012; Milyavskaya et al., 2015; Milyavskaya & Inzlicht, 2017), it

could be because a large part of the literature has viewed obstacles as merely temptations and problematic desires (Leduc-Cummings et al., 2022), or as resource constraints at both personal level (e.g., lack of time) and environmental level (e.g., lack of means and options) (e.g., Leduc-Cummings et al., 2017; Leduc-Cummings et al., 2022; Milyavskaya et al., 2015).

In contrast, positive outcomes of obstacles can also emerge. Encountering obstacles in the form of challenges during goal pursuit can motivate people to invest higher effort toward goal attainment (e.g., Carver, 2006; Martin et al., 1993). Further, overcoming obstacles, at least at optimum levels, has not only been linked to individual growth and sustained motivation but also to a host of wellness-relevant outcomes including more positive experiences, greater well-being, and higher vitality (Ryan & Deci, 2017). Thus, whether obstacles can benefit or hurt the goal pursuit depends on the form of the obstacles and their relation to the goal. We posit that in a customer journey, the same logic applies to friction. That is, whether friction will generate a positive or negative customer experience depends on how the task relates to the consumption goal. In the next section, we will discuss two dimensions to characterize the task friction.

2.4 | Two conceptual dimensions of friction in customer experience

We posit that friction can be characterized by two conceptual dimensions: task desirability and task value. Task desirability refers to the pleasure of performing a task or an activity at hand (Kaiser et al., 2017). It captures a customer's subjective assessment of how enjoyable a task is. Task value refers to a customer's subjective assessment of a task's instrumentality of attaining the consumption goal and its importance in terms of welfare implications. We deliberately select two dimensions that are based on customers' subjective judgments to categorize goal-related tasks and friction. This is because, to understand how consumers assess friction in customer experience, it is critical to take a customer-centric perspective and understand the friction from their interpretations of the goal-related tasks in the customer journey. We will explain each dimension next.

2.4.1 | Task desirability

We focus on task desirability as a dimension to categorize goal-related task friction because according to goal theory, goal task desirability determines the motivation to pursue the task (Aarts et al., 2007; Custers & Aarts, 2005; Förster et al., 2009; Kaiser et al., 2017). Specifically, the goal-related task desirability can reflect a customer's autonomous motivation—that is, a “want-to” task that they genuinely want to do, or controlled motivation—that is, a “have-to” task that they think they must do owing to external or internal pressures (Deci & Ryan, 2000; Leduc-Cummings et al., 2022). Research finds that “want-to” tasks not only increase the degree of

effort that people are willing to and actually invest (e.g., Koestner et al., 2002, 2008; Sheldon & Elliot, 1998) but also the extent to which they perceive the goal pursuit to be “effortless” (e.g., Werner et al., 2016). In the context of customer experience, customers complete goal-related tasks at touchpoints to achieve their consumption goal, and these goal-related tasks can vary in their desirability. Generally speaking, “want-to” tasks have greater desirability than “have-to” tasks. Task desirability directly influences customers' voluntary willingness and motivation to exert effort in completing the goal-related task in the customer journey. Given that friction increases effort, task desirability allows us to determine how consumers will assess the friction in goal-related tasks.

2.4.2 | Task value

We focus on task value because, like task desirability, task value also has implications on the level of effort customers are willing and ready to exert, which can influence their assessment of the friction in goal-related tasks. Task instrumentality refers to the degree to which task completion is instrumental for goal attainment (Bong, 2001; Husman & Lens, 1999; Ryan et al., 1996; Simons et al., 2000). For tasks that are instrumental for goal completion, it is fair to assume that customers perceive greater value in these tasks and are willing and ready to exert more effort in completing them, compared with less instrumental tasks. In addition to task instrumentality, customers also assess the task value based on the welfare implications of the task. Customers also assign greater value to tasks that can potentially hurt customer's welfare (e.g., privacy, safety, and mental and physical well-being). It is worth noting that task instrumentality and task welfare implications are considered independent dimensions. Certain tasks, such as making payments are both instrumental for the consumption goal and if not designed properly, can cause cybersecurity threats or damage customer's financial well-being. Other tasks such as waiting in queue or parking are usually not instrumental for the consumption goal and do not have strong welfare implications.

3 | TYPOLOGY OF FRICTION IN CUSTOMER EXPERIENCE

Based on the two dimensions of task desirability and task value, we identify four types of friction: frustrating friction (low desirability, low value), constructive friction (low desirability, high value), preference-based friction (high desirability, low value), and rewarding friction (high desirability, high value). The typology and the examples are illustrated in Figure 1.

Before elaborating further on each of the four types of friction and the important factors affecting the perception of friction, to better understand the breakdown of the goal-related tasks in a customer journey, we will discuss how our framework applies to tasks

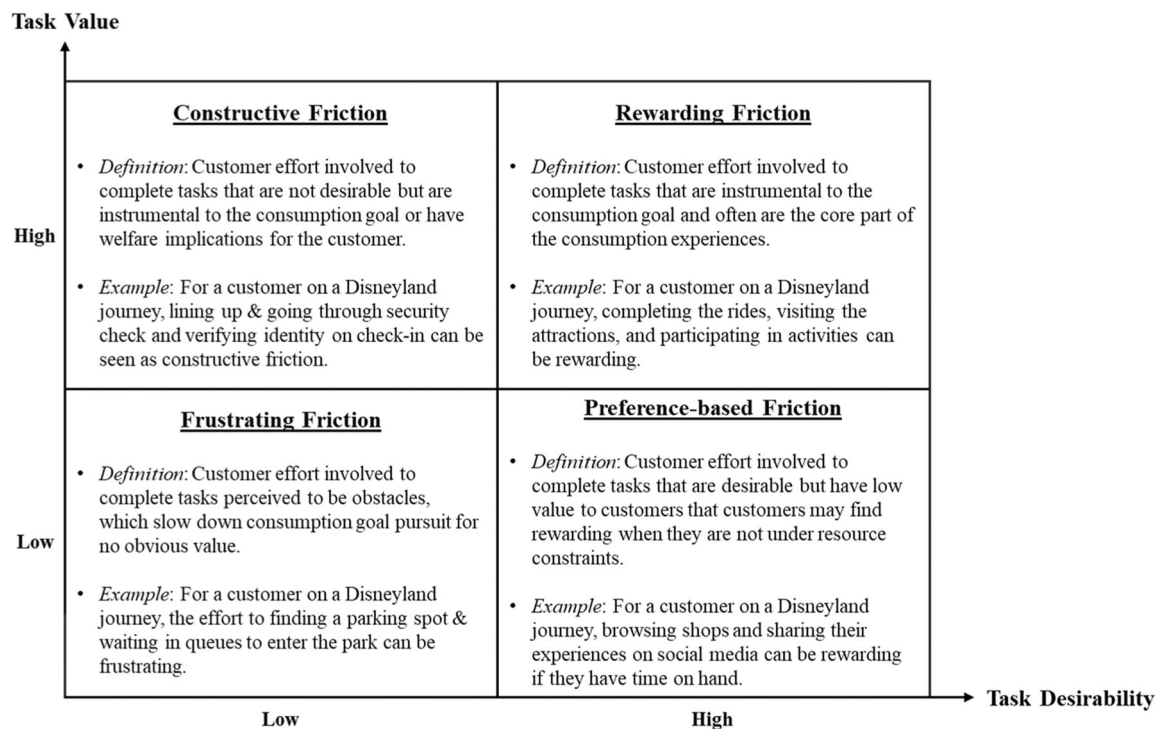


FIGURE 1 Friction typology and definitions.

in two typical customer journeys: one for purchase of tangible products (i.e., purchasing IKEA furniture) and one for consuming an experience (i.e., going to Disneyland).

First, buying furniture from IKEA may involve searching for a suitable product, measuring the space's dimensions, assessing the items' suitability, and going to the store/shopping online. If shopping in the physical store, additional tasks such as browsing in the store, consulting with the store staff, locating the desired items, queuing at the cashier checkout, making a payment, dining at the restaurants, driving to the store, and back home may be involved. For online shopping, browsing the online store, making a payment, and arranging delivery may be involved. Once the furniture arrives at home, customers can choose to assemble and arrange the furniture themselves or hire an assembly service to put the furniture together. In case the furniture does not meet the customer's expectations, post-consumption tasks such as arranging a return or an exchange will be involved.

Next, the customer journey of visiting the Disney theme park involves deciding the date of the visit, finding deals for tickets online, booking and purchasing tickets, arranging transportation (driving or taking a bus), browsing the attractions and planning the activities, queuing for attractions, participating in the activities and taking the rides, shopping at the stores, eating at the restaurants, and sharing experiences on social media during or post-visit.

All the tasks listed in the two journeys can vary in the levels of friction. For instance, if customers decide to drive themselves, the friction of parking can be high if the parking spaces are limited and if it is difficult to navigate the parking lot to find an available

spot. The friction of parking can be lowered if customers can access live parking information on their mobile phones and navigate them to the available spot. The friction of parking can be further lowered if customers have the option of reserving a fixed parking spot in advance. Next, we will use these examples to discuss four types of friction in turn and their implications for customer experience.

3.1 | Frustrating friction

The friction in goal-related tasks that are of low value and low desirability for customers is labeled "frustrating friction." This friction creates obstacles for customers and slows down their progress in the customer journey for no obvious value. Thus, customers will not be able to justify the effort exerted in overcoming the friction in these goal-related tasks. Experiencing this type of friction will lead to customer frustration, dissatisfaction, and annoyance. Customers may even leave the journey altogether if the frustration becomes too intense.

The negative customer experience caused by frustration friction is particularly prominent if customers can easily attribute their increase in effort to the firm's lack of effort, which can occur owing to a myriad of reasons including capacity constraints, lack of planning, lack of training, substandard processes, and communication strategies. Khamitov et al. (2020) consolidate such friction as brand transgressions, service failures, and product-harm crises as "negative marketing events," which can create speedbumps in

the development of customer-brand relationship or even trigger a complete reappraisal of the relationship. Holz et al. (2023) classify pain points into three broad customer experience themes, including information, performance, and hospitality. Within each theme, the pain points and their causes are from the firm (e.g., lack of timely notification, poor queue management, inadequate facilities). These pain points create negative emotions and negatively influence customer's well-being, prompting customers to experience anger, fear, and sadness (Holz et al., 2023). Thus, for businesses to enhance customer experience, it is imperative to eliminate frustrating friction.

3.2 | Constructive friction

When the goal-related task is perceived to be of high value, but customers do not necessarily find it enjoyable (i.e., the "have-to" tasks), we label the friction in these goal-related tasks as "constructive friction." These tasks are the ones that are instrumental for goal attainment, and therefore, customers understand the value of exerting effort in these goal-related tasks. For tasks with welfare implications, it may even be necessary to introduce friction to protect customer welfare. Taking payment as an example, even though reducing or removing friction in the payment process is feasible, it may lead to lowered payment security and financial information protection for high-ticket purchases, purchases from new vendors, or new payment methods. Furthermore, when payment becomes easy, it may prompt customers to overspend and be less careful about their long-term financial situations. This can potentially cause detrimental impacts on customers' financial well-being. Similarly, for companies that intend to implement more automation and AI-powered technologies in the customer journey, removing friction may lead to harm from privacy and surveillance concerns to ethical issues such as algorithmic bias (Gosline, 2023). More relevant to consumer welfare, algorithms may provide output to nudge consumers into purchase decisions that may not work in their best interests (Hunold et al., 2020; Wirtz et al., 2023). Thus, friction in these goal-related tasks, despite demanding customer effort and slowing down their goal progress, provides benefits beyond achieving the consumption goal itself.

Businesses can take constructive friction as an opportunity to engage with their customers and enhance their image and reputation. As mentioned above, the tasks where constructive friction can be created are the ones that are either instrumental to consumption goal attainment or have strong welfare implications. Thus, even though customers do not derive a lot of pleasure from completing these tasks, they recognize the importance of the tasks, and they are willing to exert more effort. In these cases, friction can serve as an opportunity for businesses to educate customers, ensure that they are aware and understand the issues, and empower them with choices and options of sharing their data. By doing so, customers will form an impression that the firm is customer-centric and transparent. This can translate into a deeper

and more meaningful customer relationship and long-term loyalty (Kumar et al., 2008; Palmatier et al., 2019).

3.3 | Preference-based friction

When goal-related tasks are of low value but completing these tasks is enjoyable for customers, we term the friction in these tasks as "preference-based friction." Even though customers are willing to invest effort to complete such goal-related tasks and derive positive experiences from doing it, the low value of the tasks may deem the effort expenditure decision circumstantial. That is, depending on customers' resource availabilities and constraints, in some situations, they will derive positive experiences from overcoming preference-based friction, but at other times, the constraints they face may make such friction undesirable. For instance, dining at IKEA or Disney restaurants is not instrumental for the consumption goal, but if customers have sufficient time and money to make this a part of the overall experience, maintaining a certain level of friction such as telling customers stories about the restaurant, explaining the items on the menu, inquiring customers' dietary preferences and restrictions, and explaining the dining rules (if any) can enhance the experiences even if it makes the journey less smooth. If integrated well, friction in these tasks can even become an integral part of the overall experience for experience-based businesses such as Disneyland. For instance, challenges relating to Disney stories and characters can be created in the restaurants for the diners. Similarly, restaurants can require diners to dress up to fit in certain Disney themes.

In contrast, when consumers are not ready or not able to exert effort to overcome the friction in these tasks, they may not derive any positive experiences from it. Imagine two exhausted parents with several young kids at a Disney theme park. They may not respond well if the restaurant denies their entry for not being able to dress up to fit the theme of the night. Therefore, for preference-based friction, a viable strategy to implement them into the journey design is to make it optional and let the customers self-select into embracing friction or not. In the case of Disney restaurants, the themed dinner can take place in one or a few of their restaurants so that customers who would like to participate can opt in to dine at those restaurants.

3.4 | Rewarding friction

For tasks that are considered of high value and high desirability, we define the friction in these tasks as "rewarding friction." These are the tasks that are instrumental to the consumption goal and often are the core part of the consumption experiences. For instance, on the Disneyland journey, completing rides, visiting the attractions, and participating in activities are the core consumption activities. Thus, these are the experiences that will contribute most to the overall customer experience. These are also the activities customers are willing to

invest effort as they are the key determinants of goal attainment. Similarly, customers who sign up to be gym members expect to exert effort in exercising by taking group classes or training with personal trainers, as this is how they achieve the goal of getting fit. As a result, friction in these activities is considered positive. This is also evident in the IKEA journey. Assembling the furniture requires more effort than buying preassembled furniture or hiring someone to assemble the furniture. However, the effort can enhance the customer's perceived value of the furniture and potentially the customer experience of the journey (i.e., the IKEA effect, Norton et al., 2012).

Introducing or increasing friction in these tasks, therefore, can be an opportunity for businesses to extract additional customer value. As discussed above, overcoming challenges in achieving a goal is a rewarding experience (Ryan & Deci, 2017), and exerting more effort can potentially make the experience more memorable (Maeda, 2019). Both can contribute positively to the customer experience. Thus, designing a customer journey with rewarding friction is beneficial.

3.5 | Additional notes on friction classification

It must be noted that the classification of goal-related tasks into different categories of friction is subjective and contingent on the type of customer journey and the clarity in the customers' subjective evaluation of a task's desirability and value.

In relation to the customer journey type, the friction in the same goal-related task may be perceived and categorized differently in different customer journeys. For instance, making payments for large-ticket purchases, using new types of payment methods, or using unfamiliar online vendors should require a certain level of friction as protection for customers in terms of financial decisions, privacy, and payment security. In these journeys, as illustrated in Figure 1, friction in payment can be considered constructive friction. However, for journeys involving habitual, familiar, and small-ticket purchases, customers may view friction in payment as triggers for frustration. In these cases, friction in payment may be categorized as frustration friction, and it is better to eliminate it.

Further, regarding the evaluation of a task along the dimensions of desirability and value, it must be emphasized that these dimensions should be evaluated as continuous and not dichotomous. While we have clearly categorized the goal-related tasks into one of the four types of friction for ease of exposition, a task's position on our friction typology framework could be on the borders of the quadrants. Therefore, the distance of the tasks from the dimension borders will influence the implications of the friction in the respective tasks. Intuitively, tasks with higher scores on task desirability will generate more positive customer experiences than tasks with lower scores (i.e., closer to the border). The perceived difference between construction friction and frustration friction located close to the task value axis will be more ambiguous than between the same two types of friction located far away from each other. Thus, the assessment of the friction also depends on where the friction is located in the conceptual framework.

4 | KEY CONTINGENCY FACTORS AFFECTING FRICTION ASSESSMENT

Thus far, we have established four types of friction and provided suggestions for businesses in terms of the implications and strategies of each type. In addition to the central dimensions of task desirability and task value in our framework, there may be contingency factors that affect customers' friction assessment. Literature broadly highlights three major classes of contingencies influencing behavior: task characteristics, characteristics of the individual performing the task, and the context in which the person performs the task (Becker & Jaakkola, 2020; Coupey et al., 1998; Payne et al., 1993). Accordingly, we argue that friction assessment is a function of task-, customer-, and context-related factors.

4.1 | Task-related factors

4.1.1 | Task difficulty

Task difficulty can be defined as an individual's subjective assessment of how much effort the task demands (Gilbert et al., 2012; Locke & Latham, 1990). Prior research shows that the positive effects of overcoming obstacles are observed only for "optimally challenging activities" (e.g., Ryan & Deci, 2017, p.156). Further, while people are more persistent with such optimally challenging tasks (e.g., LaPorte & Nath, 1976), the positive effect either levels off or even reverses beyond a threshold (Gendolla, 1999; Locke & Latham, 1990, 2002; Mallat et al., 2020; van Steenbergen et al., 2015).

Building on this view, we argue that, regardless of the type of friction, when the required effort to overcome the friction becomes too high, the relationship between friction and customer experience can turn negative. Therefore, even for "good" friction, we should expect that the relationship between the effort and the customer experience may follow an inverted U shape (see Figure 2 for an illustration), implying that too little effort and too much effort may cause a negative customer experience. However, effort around the optimal "tolerance level" may lead to a positive customer experience. Businesses should find the optimal level of effort that customers are willing to put into the task without jeopardizing customers' overall experience.

4.1.2 | Progress monitoring

Goal progress monitoring allows people to determine the discrepancy between the current and desired states (Carver & Scheier, 1982, 1990) and is shown to improve goal attainment (Harkin et al., 2016). In the context of customer experience, such feedback systems are regularly built into various aspects of the customer journey—for example, loyalty programs, gamification of tasks, and step-by-step breakdown of tasks like account setup.

Customer Experience

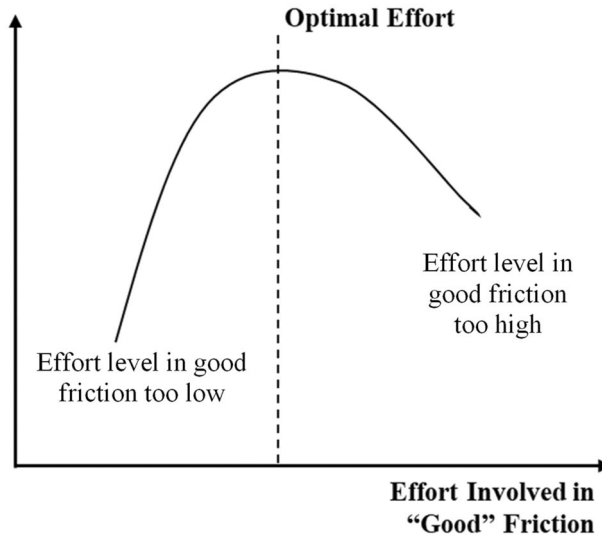


FIGURE 2 The relationship between effort and customer experience for “good” friction.

Having visibility of the progress made on the task can aid customers in their reassessment of task difficulty and/or the task value relative to the required effort and, consequently, their goal commitment. Within our framework, because constructive friction involves “have-to” tasks, helping customers keep track of their progress may prove even more beneficial.

4.2 | Customer-related factors

There may be interpersonal differences in how different customers assess friction. For example, there is some evidence that despite the enjoyment and/or savings offered by DIY furniture brands like IKEA, many customers may still feel frustrated with the assembly process (Hammon, 2021). We identify three potential customer-related factors that can explain the interpersonal differences: goal orientation, self-efficacy, and emotional state. We discuss each of them below.

4.2.1 | Goal orientation

Individuals may pursue goals with either a learning or performance orientation (Chen et al., 2000; Farr et al., 1993). While learning orientation is defined by a person's desire for a challenge with the aim of meeting their own internal standards, performance orientation relates to a person's desire for the challenge and is driven by normative standards. As performance orientation is driven by normative pressures, it may negatively influence the extent to which tasks are deemed “want-to,” consequently reducing the extent to which friction can be rewarding. In contrast, those with a learning orientation may assess customer experiences involving rewarding and preference-based frictions more positively. In other words, how an individual customer assesses the friction and categorizes it may also depend on this customer's goal orientation.

4.2.2 | Self-efficacy

Self-efficacy is the belief that a person can perform a particular task (Bagozzi & Dholakia, 1999; Bandura, 1997, 2001; Schwarzer, 2014). Prior research finds that individuals with higher perceived self-efficacy are willing to invest greater effort in goal pursuits and persevere in the face of obstacles (Bandura & Locke, 2003; Franco et al., 2002). Relating these findings to our framework, customers with higher perceived self-efficacy may be more likely and willing to exert greater effort to overcome rewarding, constructive, and preference-based friction. Subsequently, these customers may also derive more positive experiences from doing so.

To enhance customers' perceived self-efficacy, businesses could introduce social comparison and encourage customers to observe and compare their performance not just relative to their own previous performance but also relative to their peers. Social comparison may trigger achievement motivation to not only meet internal standards of performance but also outperform others (Harackiewicz et al., 1998; Job et al., 2009), motivating customers to exert effort in overcoming friction that can enhance their overall customer experiences.

4.2.3 | Emotional state

A person's emotional state can influence their perceptions of resources available and how they allocate those resources to tasks at hand. For example, when people are anxious, they may feel as if they possess fewer resources to complete the task effectively (Kanfer & Ackerman, 1989; Kanfer & Heggstad, 1997). Similarly, while positive emotions may increase people's approach motivation, indicating a greater willingness to invest more resources in goal pursuit or set higher goals, negative emotions, in contrast, may increase avoidance motivation, reducing their willingness to invest more resources (Beck et al., 2017; Ilies & Judge, 2005). In relation to our framework, these findings suggest that customers with various emotions and affective

states may also react and assess the friction in the same goal-related tasks differently. Thus, businesses need to monitor and seek ways to account for their effects when designing friction in the customer journey.

4.3 | Context-related factors

People do not engage in goal pursuits in a vacuum. The environment in which a person engages in goal pursuit may be influenced by intra-personal factors (e.g., life stage and task familiarity), technological developments (e.g., new technologies), social factors (e.g., consumption trends), and institutional communications (e.g., policies and businesses communications).

4.3.1 | Intra-personal factors

For the same customer, the assessment of the same friction may also change due to customers' product-specific knowledge change, changes in customers' personal situations (e.g., jobs, finances, education), and changes in life stages. A customer who has more leisure time and less financial resources may find assembling furniture desirable and enjoyable. If they progress in their career and become busier and richer, they may find assembling furniture less desirable. Thus, the friction in this task may move from "rewarding" to "constructive" or even "frustrating" friction, depending on how this customer shifts the value of assembling furniture. Similarly, customers are constantly getting new knowledge and information about technology, business, and product innovations, often from their experiences. Thus, constructive friction in some tasks aimed at helping customers gain knowledge will decrease task value and possibly become frustrating friction. Thus, businesses need to be aware of the implications of these changes in customers and consider using these variables to guide and update customer segmentation.

4.3.2 | Technological advancements

Many new technologies have the potential to redefine customer experience and displace existing incumbents and previous customer experience norms (e.g., Shankar et al., 2021; Shankar, 2019). While new technologies may facilitate and augment current benefits (e.g., payments using mobile wallets and in-store product browsing augmented with mobile apps), they may also disrupt and upend the industry norms and standards (e.g., e-commerce) (Shankar et al., 2021). Either way, they bring about significant behavioral change in customers, which may, in turn, influence how customers perceive friction in terms of task desirability and task value. For example, when virtual assistants are widely adopted by customers for making automatic ordering and purchasing of consumable goods, a lot of the tasks that exist in the current grocery shopping customer journey will likely decrease in task value. However, if the virtual

assistants are commercially operated and have the potential to work in the interests of the businesses rather than consumers, the task value may remain high as consumers may need to understand the mechanisms of virtual assistants' decision-making process to learn how to use virtual assistants to serve their own best interests. These potential changes can be even more substantial when AI concierge becomes accessible to consumers (Liu et al., 2024). These technologically advanced personalized assistants can take care of individual customers' needs throughout the whole customer journey, which will render even more tasks losing task value.

4.3.3 | Socio-cultural factors

Customers' expectations and emotional states may also be driven by social factors, including the presence of others during task performance and consumption trends. Such social factors may, in turn, influence the perceptions of task desirability and/or task value. For example, while a queue for a rollercoaster ride in an amusement park may sound discouraging, it can also shape a customer's perception of the ride's popularity and the anticipated enjoyment. In turn, perceptions regarding the popularity of the ride and the anticipated enjoyment from completing the ride can influence a customer's decision to invest greater effort to wait in line. Similarly, consumption trends or viral social media posts can increase the perceived value of a consumption goal due to either greater anticipated value as in the previous example, or due to the "fear of missing out (FOMO)" (Fioravanti et al., 2021). It is noteworthy that FOMO-driven task performance and derived satisfaction tend to be lower (Gupta & Sharma, 2021).

4.3.4 | Institutional communications

Communication from institutions, including both businesses and government, can influence customers' effort tolerance levels. This is because when customers are informed about the importance of completing certain goal-related tasks, they may reassess their effort tolerance level in completing the tasks. Such education programs may be relevant to both "have-to" and "want-to" tasks. For example, customer's awareness about the importance of getting vaccinated (a "have-to" task) or being informed about the need to press "Continue Watching" when binge-watching on streaming services like Netflix (a "want-to" task) can increase their effort tolerance level. However, such education programs may be more important for "have-to" tasks, particularly mandated tasks (e.g., tax filing and vaccine mandates).

5 | CURRENT BUSINESS PRACTICE OF ELIMINATING FRICTION

To understand how our framework can aid managers, particularly those in charge of customer experience design and management, we first begin by collecting company announcements about their

frictionless customer experience initiatives and understanding what aspects of customer experience firms are prioritizing to be frictionless. Our sample consists of 66 announcements between 2016 and 2020. An example of such an announcement from our sample is by Chipotle, the fast food chain. They announced the opening of their “Digital Kitchens” during the pandemic to provide a fast and convenient way for customers to enjoy Chipotle’s food without having to worry about the risk of exposure to coronavirus at the diner. Another example is that of Dreams Hotel, which envisions facilitating highly accurate, multilingual interactions between their staff and travelers across the globe by offering real-time voice translations using voice assistants.

Next, to analyze the announcements to understand the current business priorities, we perform a topic modeling analysis of 66 company announcements between 2016 and 2020, discussing their efforts to provide a frictionless customer experience. Topic modeling refers to a statistical technique that reveals hidden themes within a set of documents. Unlike supervised learning, it does not rely on labeled data. Instead, it analyzes how words often appear together in the documents to identify latent topics. The ability to identify latent topics makes topic modeling suitable for inductive analysis of large numbers of qualitative data efficiently to generate data-driven emergent themes of the phenomenon instead of making assumptions regarding the themes underlying the data (Banks et al., 2018).

In the context of our study, topic modeling of frictionless customer experience-related announcements can help us understand what aspects of customer experience firms are targeting to minimize or eliminate friction. Building on these findings from practice, we then corroborate findings from our conceptual foundations to provide actionable insights for managers.

5.1 | Analytical process

To conduct the topic modeling, we follow the best practices recommendations by Banks et al. (2018), which we summarize in Figure 3. Please refer to the Appendix for complete details of the methodology.

5.2 | Topic identification

Our analysis reveals that when taking a customer perspective, firms are prioritizing frictionless customer experience in the following six key broad areas: (1) *on-demand access to the offering*; (2) *resolve offering-related issues*; (3) *make payments*; (4) *access and switch between multiple channels*; (5) *browse and access offerings from trustworthy marketplace*; and (6) *mitigate risks of being defrauded*. We provide comprehensive details about our analysis in the Appendix A.

The priority aspects of customer experience from which companies are trying to eliminate friction are all tasks with low desirability (i.e., “have-to” tasks). This is not surprising, given that all the announcements are about removing friction in the customer journey.

For example, customers “have to” contact customer service and support center when there is a problem. Similarly, resolving third-party issues is a “have-to” task when a customer faces issues due to the actions of a third actor, either in the firm’s ecosystem (e.g., partner) or outside (e.g., hacker).

5.3 | Insights from the topic modeling

From the above topic list, topics 1 (on-demand access to the offering), 2 (resolve offering-related issues), 4 (access and switch between multiple channels), and 5 (browse and access a variety of offerings from multiple merchants) represent tasks that customers do not necessarily enjoy doing (or take for granted) and are of relatively low task value. Based on our typology, the friction in these tasks can be “frustrating friction,” and reducing or eliminating friction in these tasks can enhance customer experience.

However, despite the tasks being of a “have-to” nature, friction in tasks related to topics 3 and 6 can play an important role in customer welfare. For example, many experts are calling for increasing friction when making payments to enhance customer decision-making quality (Bertini et al., 2024). Similarly, friction in the form of multiple authentication steps, learning about privacy and risks of being defrauded, and taking other preventive measures (e.g., changing passwords frequently) to safeguard sensitive information are also not particularly enjoyable for customers. Given that relatively high task value, friction in such tasks should be considered “constructive”; eliminating all friction from these tasks can, therefore, affect customer experience negatively. As we have discussed earlier, creating some levels of “constructive friction” in these tasks may, in fact, empower customers and enhance customers’ perception of agency over their decisions and well-being.

The insight from our topic modeling analysis suggests that businesses have been mindlessly removing constructive friction, while such friction can potentially help businesses improve the perceived transparency of the business. Prior research shows that although customers are generally concerned about their online privacy, they do not make sufficient effort to safeguard themselves—for example, by reading the terms and conditions when giving consent to online services to access their information (Berreby, 2017; Steinfeld, 2016). This trend is expected to continue in the growth of machine learning and AI, where customers’ information will be used for businesses to target individual customers based on their needs and preferences more accurately. However, such technological adoption makes it possible to manipulate customers into the business without fully understanding the costs and benefits. The ethical concerns about AI have already received a lot of attention from the government, practitioners, and academic research. Businesses, thus, should be aware of the ethical implications of these technologies in customers’ well-being and use this as an opportunity to educate customers and help them understand these implications and communicate clearly the purpose and benefits of these tasks and

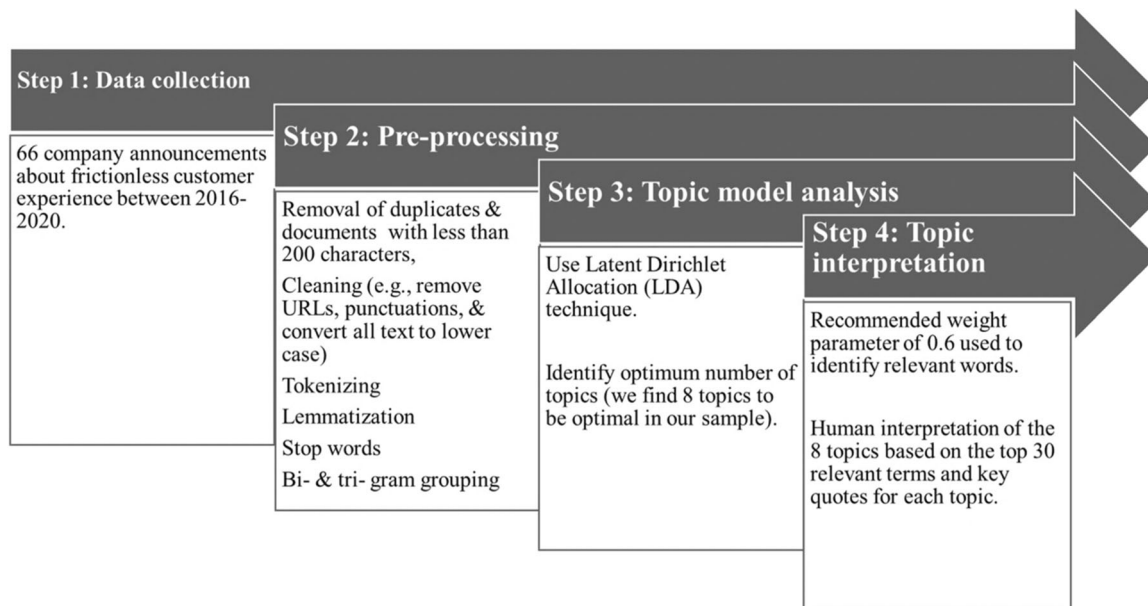


FIGURE 3 Analytical process followed for topic modeling analysis.

why the effort will be beneficial to the customers. By doing so, businesses create “constructive friction” that requires additional customer effort, but customers may appreciate the transparency and the customer-centricity of the business. Focusing on maintaining constructive friction and communicating the reasons for the effort can also prevent customers from making automatic attributions of the effort required of them to firms’ lack of effort (e.g., lack of resources, infrastructure, personnel investments, etc.). Thus, the benefits of maintaining constructive friction go beyond the customer experience itself; it can potentially enhance customers’ trust in and perception of the business.

6 | GENERAL DISCUSSION

In this article, we sought to bridge the diverging views on frictionless customer experience by laying out the conceptual foundations of friction in customer experience, including its definition, different types of friction based on task characteristics, and their implications for customer experience. We do so by viewing a customer journey as a goal-pursuit process and building on the goal-striving theory. We summarize our insights related to our four key research questions in Table 2. In turn, the article makes important contributions to theory and provides important managerial insights, which we will discuss next.

6.1 | Theoretical contributions

Our study makes four key contributions that advance the literature on customer experience by embarking on the conceptual development of friction in customer experience to provide a shared

understanding of the concept that can guide and facilitate future research on friction.

First, we provide a resolution to the debate on whether friction in customer experience is good or bad, which has intensified recently. While the initial discussions leaned more toward how friction can be detrimental to customer experience and called for customer experience to be “frictionless” (e.g., Dixon et al., 2010, 2013; Gates et al., 1995), the recent discussions have called such approach into question—particularly in relation to customer welfare (e.g., Bertini et al., 2024; Gosline, 2023). Such a wide divide on the topic can prove counterproductive for customer experience innovations as organizations may pursue initiatives that inadvertently affect customers or render the resource investment wasteful. To reconcile the debate and develop a unified view of friction, we draw from goal-striving theory and argue that friction should simply be viewed as a force resisting a customer’s progress along the customer journey, increasing customers’ effort to achieve their consumption goal.

Second, in addition to defining friction and understanding its impact on customer effort, we clarify when such resistance is “good” or “bad” depending on the nature of the goal-related task. Specifically, we argue that customer assessment of friction is a function of task desirability—that is, the extent to which customers “want-to” or “have-to” perform a task (Kaiser et al., 2017), and task value—that is, a composite dimension encompassing task instrumentality (Bong, 2001; Ryan et al., 1996) and implications for customer welfare. The resulting typology of friction, based on the customer’s assessment of the goal task’s desirability and value, presents four different frictions—frustrating (low desirability, low value), constructive (low desirability, high value), rewarding (high desirability, high value), and preference-based (high desirability, low value). Such a parsimonious organizing framework providing an overarching view of all potential frictions embedded in customer experience can help researchers and

TABLE 2 Summary of insights related to key research questions.

Research Question	Insight
Definition of friction: What is the conceptual definition of friction in the context of customer experience?	Friction in customer experience as the force existing within a goal-related task that resists a customer's progress along the customer journey. friction increases the demand for customer effort.
Types of friction: How to conceptually classify friction into different types?	Friction can be characterized along two conceptual dimensions of the task desirability and task value as: <ul style="list-style-type: none"> A. Frustrating friction: The friction in goal-related tasks that are of low value and low desirability for customers. B. Constructive friction: The friction in goal-related tasks that are of high value, but customers do not necessarily find them enjoyable (i.e., the "have-to" tasks). C. Rewarding friction: The friction in goal-related tasks that are considered of high value and high desirability by the customers. D. Preference-based friction: The friction in goal-related tasks that are of low value but completing these tasks is enjoyable for customers.
Implications for customer experience: What type of friction can impede or improve customer experience?	While frustrating friction negatively affects customer experience, our findings suggest that there are opportunities for businesses to consider other forms of friction to enhance customer experience.
Contingency factors affecting friction assessment: What are the key contingency factors that determine the role friction plays in customer experience?	We identify task-, customer-, and context-related factors that can affect the assessment of friction in customer experience. <ul style="list-style-type: none"> Task factors: task difficulty, progress monitoring Customer factors: Goal orientation, self-efficacy, emotional state. Context factors: Intrapersonal contextual factors, technological advancements, sociocultural factors, and institutional communications.

practitioners relate to the type of friction they are examining and make informed choices in their studies or customer experience innovations.

Third, we also highlight which of these frictions can enhance or impede customer experience. Of the four types of friction, only the frustrating friction is detrimental to customer experience. In contrast, the other three types of friction present opportunities to potentially enhance customer experience. Thus, our study bridges the debate on friction in customer experience by identifying when and what type of friction can be beneficial or detrimental. The significance of such an understanding is further accentuated by the ongoing infusion of digital technologies in customer experience across the customer journey with the aim to reduce or even eliminate the customer effort from the customer journey (e.g., Gauri et al., 2021; Gosline, 2023; Grewal et al., 2021; Lemon & Verhoef, 2016; Shankar et al., 2021; Shankar, 2019). As we show, eliminating all frictions from the customer journey may imply missing out on several opportunities to enhance customer experience.

Finally, we highlight the important contingency factors driving customer friction assessment, including the role of task-related factors such as task difficulty and progress monitoring, customer characteristics (e.g., goal orientation, self-efficacy, emotional state), and contextual factors (intra-personal contextual factors, technological advancements, sociocultural factors, and institutional communications.). These contingency factors may influence how desirable or valuable customers find the goal-related tasks and, in turn, their effort tolerance levels. Understanding customers' effort tolerance levels is crucial, as even "good" friction must be at optimum levels to enhance customer experience.

6.2 | Managerial implications

The insights from our conceptual development and the topic modeling analysis of company announcements point to some important takeaways for managers. We summarize the key implications for managers based on our friction typology in Figure 4.

The biggest takeaway is that companies should not blindly follow the frictionless customer experience strategy and attempt to make all the goal-related tasks in a customer journey effortless. Even though removing frustration friction is necessary, other forms of friction can enhance customer experience and can translate into positive customer experience, additional customer value, enhanced brand reputation, and loyalty. Therefore, and somewhat counterintuitively, focusing on adding friction in such tasks serves as an alternative pathway for businesses to create competitive advantage.

To identify "good friction" and the business opportunities toward those types of friction, managers can follow our framework to identify tasks in the customer journey that have high desirability and high value from the customers' perspective. These tasks are likely to be the ones that drive customers to the businesses in the first place. Taking the rides at the theme parks, participating in challenging activities (e.g., the escape rooms), doing crafts, and building furniture all require effort. Still, customers derive pleasure from making the effort, and the effort is instrumental in helping them achieve their consumption goals. Thus, friction in these tasks contributes positively to the customer experience. However, as we have noted, businesses also need to consider the "optimal" level of friction to avoid too little

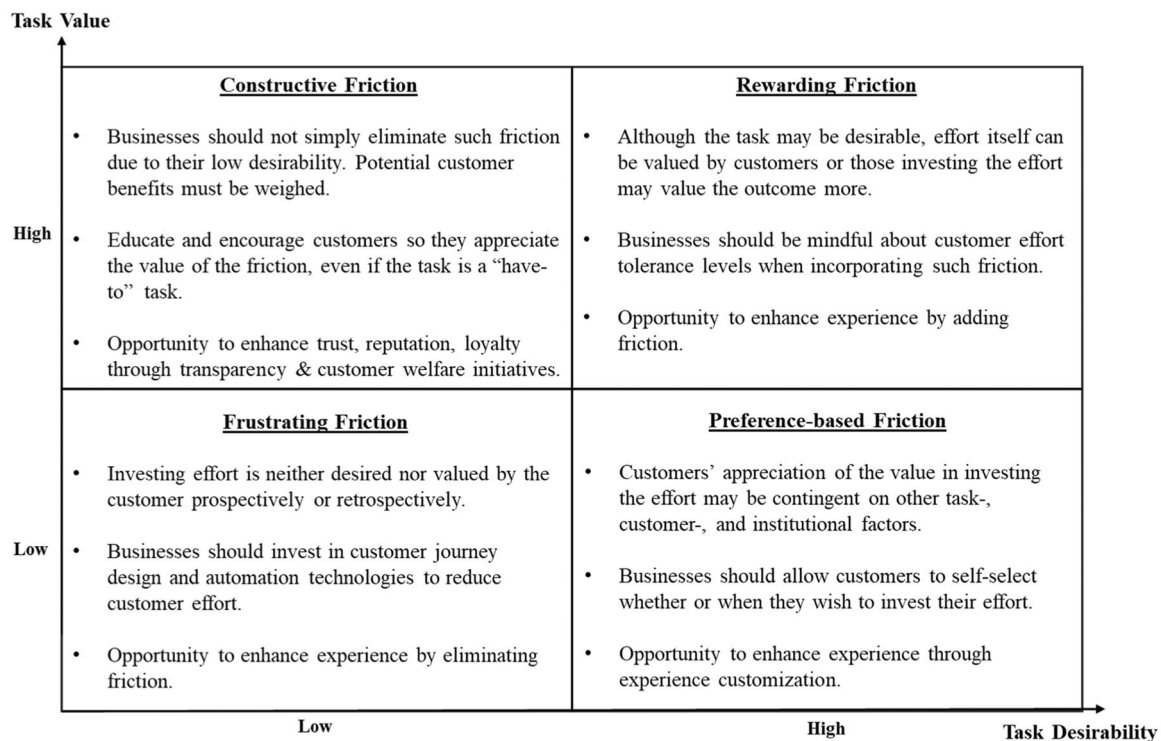


FIGURE 4 Key managerial implications based on friction typology.

effort, making the experience less rewarding and too much effort leading to frustration.

Further, a consideration of customer heterogeneity is also necessary in two ways. First, customers may vary in their subjective assessment of a task’s desirability and value. Friction may be considered rewarding for one customer but not for the others. Using the IKEA example, not all customers who purchase IKEA furniture necessarily enjoy the assembling task and find it rewarding (Hammon, 2021). Therefore, to accommodate such a heterogeneity, businesses need to offer other solutions, such as assembly services, to customers who do not consider this friction rewarding. Similarly, customers may have varying effort tolerance levels. So, some customers may find the friction challenging and enjoyable, while others find it frustrating. A simple solution to this issue would be to offer a range of options varying in effort requirements for customers to choose from based on their own tolerance level. Perhaps this is the reason why IKEA also offers an assembly service for customers with lower effort tolerance levels for an additional fee. Similarly, in some video games, players can choose the difficulty level of the game.

Furthermore, we have identified “preference-based friction,” which exists in tasks that are of low value but of high desirability. These tasks are not instrumental in helping customers achieve their consumption goals and do not have strong well-being and safety implications. However, customers may derive pleasure from completing these tasks. In a way, we could think of these tasks as opportunities to create additional customer delight and engagement. For instance, many businesses offer loyalty schemes to generate customer loyalty and reward customers for their purchases (Belli

et al., 2022; Melnyk & Bijmolt, 2015). A simple form of the loyalty scheme is punch cards, where customers get a reward after accumulating a certain number of purchases. The task of accumulating points is not valuable to the consumption goal, but customers may derive a sense of achievement from doing so. Therefore, the friction—the effort required to complete the task—is preference-based. That is, customers who enjoy the task could decide to opt into the loyalty program. Similarly, as mentioned above, experience-based consumption could require customers to exert additional effort (e.g., dress up for the theme, participate in a challenge, etc.) to further enhance their customer experiences. However, when deploying friction in these tasks, businesses need to be mindful of targeting customers who find these goal-related tasks desirable and providing options for customers not to participate if their circumstances and resources restrict them from participating and enjoying the tasks.

Overall, given the subjective nature of the perceived friction and the importance of having optimum levels of it in the customer journey, it is important for businesses to gain insights about customers’ assessment of different goal-related tasks for segmenting customers and then design appropriate journeys based on the segmentation. Thus, understanding the contingency factors affecting the perception of friction is crucial for designing customer-centric journeys. We recommend that managers also carefully assess several factors affecting friction perceptions, including the different task-, customer-, and context-related factors that we have detailed in our study. Developing such insights can aid managers in estimating the “optimum” level of friction they need to introduce in designing customer journey.

6.3 | Future research direction

This conceptual paper is a first step toward a more comprehensive understanding of friction's role in customer experience. We believe that there are several highly relevant areas for future research to explore and develop, which we will discuss below.

6.3.1 | Develop an instrument for categorizing friction

To meaningfully categorize friction in goal-related tasks, it is important and crucial to gain customer insights about their assessments of the task desirability and task value. To do so, we need a simple and effective measurement instrument, ideally in the form of a short survey or a simple task, for customers to provide their input. This could be developed as an extension or in combination with the existing tools for measuring the customer journey. For each touchpoint, customers can identify the required and frequent goal-related tasks and provide their assessment of how much they enjoy completing the task and how much value they attach to that task. However, it is noted that the task desirability and value should not be contextualized into any specific journey design, such that the friction existing in the goal-related tasks may bias customers' assessments. The goal-related tasks need to be evaluated at the general level for it to be meaningfully categorized.

6.3.2 | Obtain the optimal levels of effort for different types of friction

As we have discussed, even though we posit that some types of effort can generate positive outcomes, exceeding the optimal level of effort can be detrimental. Therefore, it is important to obtain information or insights about the range of effort levels that customers can tolerate. Similar to the friction assessment, the effort tolerance level should also be highly subjective and individualized. Different customers will have different effort tolerance levels for different goal-related tasks. The effort tolerance level may also be subjected to contextual factors, such as time and resource constraints. Thus, how to provide a sensible prediction of the effort tolerance level for different customers under different circumstances is a challenge to address.

6.3.3 | Monitor and predict the friction typology shift

In addition to the subjectivity and contextual influence, the friction in different goal-related tasks may also change typology over time. This can be caused by technological advancements, shifts in industry practice standards, as well as customers' preference shifts. A model that can continuously or periodically monitor these changes and

predict shifts of friction type will be valuable for businesses to provide timely optimization to their customer journey and customer experiences.

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DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no datasets were generated or analysed during the current study.

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APPENDIX A: TOPIC MODELING OF FRICTIONLESS CUSTOMER EXPERIENCE ANNOUNCEMENTS

Sample

To collect frictionless customer experience related company announcements, we searched the Factiva database, which covers several major news and business publications including The Wall Street Journal, with the following set of keywords to search for announcements made between 2016 and 2020: “frictionless experience,” “friction-free experience,” “zero friction experience,” “frictionless customer experience,” “friction-free customer experience,” “zero friction customer experience,” “frictionless purchase experience,” “friction-free purchase experience,” “zero friction purchase experience,” “frictionless purchase journey,” “friction-free purchase journey,” “zero friction purchase journey,” “frictionless customer journey,” “friction-free customer journey,” and “zero friction customer journey.” After screening out duplicates and irrelevant articles, we found a total of 66 announcements, which serve as our final corpus of announcements.

Text preprocessing

First, we used the Python regular expressions library to remove URLs, punctuations, and to convert all text to lower case. Next, by employing Python's Natural Language Toolkit (NLTK) package, we lemmatized the text, keeping only noun-, verb-, and adjective- type of tokens. After lemmatization, we removed several commonly occurring sets of words including common English language stop words (e.g., “a,” “an,” “the,” “and,” “in” etc.) and additional stop words identified from the text corpus (e.g., “will,” “good,” “well,” “consumer,” “customer,” “friction,” “frictionless,” “free,” “business,” “company,” “corporation,” “inc.,” “software,” “technology,” and “experience”). Finally, once the stop words were eliminated from the corpus, the tokens were then grouped into bi-grams and tri-grams.

Methodology

We used Latent Dirichlet Allocation (LDA) technique for our topic modeling, implemented using Python's Gensim package. Wallach et al. (2009) recommend to use of “asymmetric” document-topic distribution (α -alpha) and a “symmetric” topic-word distribution (η -eta) as the standard. Accordingly, the Gensim LdaModel parameter “alpha” was set to “auto,” which learns an asymmetric prior from the data and “eta” was set to “symmetric.”

The next step was to identify the number of topics. Traditional measures of model fit, such as the perplexity measure, tend to produce a large number of topics that do not correlate well with human interpretation (Chang et al., 2009). Instead, coherence measures help identify topics that are more semantically interpretable (Stevens et al., 2012). The “c_v” measure of coherence is shown to perform better than the other measures in terms of the correlation with human judgement of the topics (Röder et al., 2015). Thus, we used it to identify the optimal number of topics to be in the range of 8–12 with the best coherence scores. As seen in Figure A1, a higher number of topics saw a decline in the scores.

Based on further manual assessment of the topics, we found that eight topics were optimal as increasing this further resulted in

ambiguous, repeated or overlapping topics. Python's pyLDavis visualization package helped to inspect the intra- and inter-topic distance measures in addition to the manual screening of topics (Sievert & Shirley, 2014), and these further confirmed that the topics were overlapping and redundant topics when the number of topics was over 8. We present the inter-topic distance map in Figure A2.

Topic interpretation

For topic interpretation, we follow Sievert and Shirley (2014) and use the top 30 most *relevant*¹ terms of each topic with the weight parameter (λ) value of 0.6. Relevance of a term in LDA is the weighted average of the logarithms of the term's probability and its lift (Sievert & Shirley, 2014), where the lift is the ratio of the term's probability within a topic to its marginal probability across the corpus (Taddy, 2012). We choose the value of 0.6 for the weight parameter (λ) because it is the most “optimal” for human interpretation of the topics (Sievert & Shirley, 2014, p. 67).

We present the top 30 relevant terms for each topic, ranked in descending order in Table A1, along with key quotes containing the relevant terms. Based on the top 30 relevant terms and the key quotes, the eight topics are labeled as the following, listed in the descending order of their emphasis in the announcements: (1) secure real-time digital access; containing words like real-time, identity, access, and infrastructure; (2) customer service and support containing words like support, service, process, help, self-help, streamline, and optimize; (3) digital payments with words like digital, card, financing, purchase, financial, and contactless; (4) multi-channel integration containing words like delivery, store, online, digital, seamless, and integrate; (5) card payments & membership with words like credit card, pay, member, and program; (6) marketplace development containing words like merchant, commerce, online, partnership, transaction, and platform; (7) partner network support with words like partner, compliance, enable, financing, network, connect, and return; and (8) fraud mitigation containing words like fraud, risk, transaction, solution, email, AI, and intelligence.

While these topics provide a good overview of the industry effort directed toward frictionless customer experience, there are two main shortcomings: (a) despite the statistical separation of the topics, there is still considerable conceptual overlap between topics 3 and 5 (related to payments), and between topics 6 and 7 (related to marketplace & third-party network development); and (b) the topics demonstrate managerial effort but did not translate into customer perspective. To overcome this, we merged the overlapping topics and translated these eight topics into six broad areas reflecting customer perspective: (1) *on-demand access to the offering*; (2) *resolve offering-related issues*; (3) *make payments*; (4) *access and switch between multiple channels*; (5) *browse and access offerings from trustworthy marketplace*; and (6) *mitigate risks of being defrauded*.

¹Relevance is similar to the FREX score used in other topic modeling techniques (e.g., Structural Topic Modeling), which is defined as the harmonic mean of a term's rank within each topic based on the term's frequency—that is, the number of times the term appears in a topic, and exclusivity—that is, the degree to which the term appears in a topic to the exclusion of others (Bischof & Airoldi, 2012).

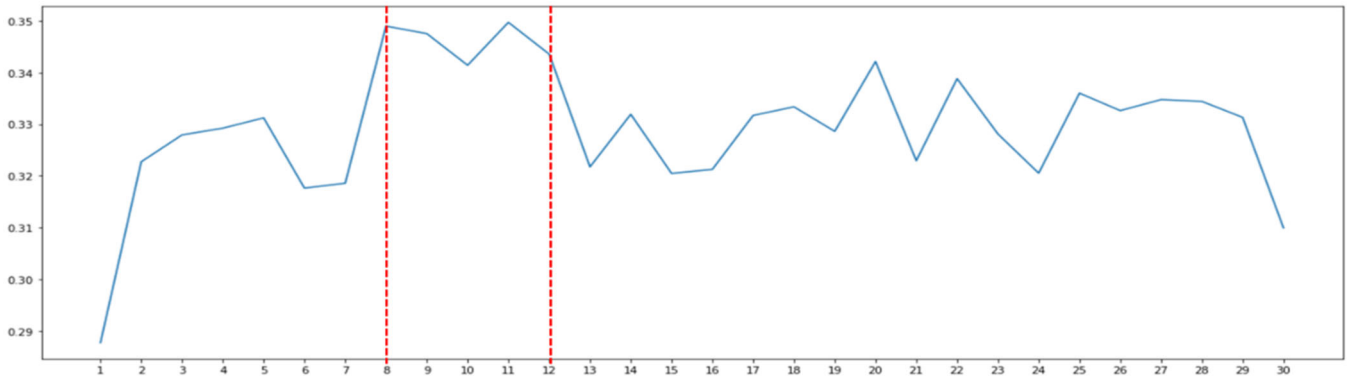


FIGURE A1 Elbow graph for topic extraction.

FIGURE A2 Inter-topic distance map.

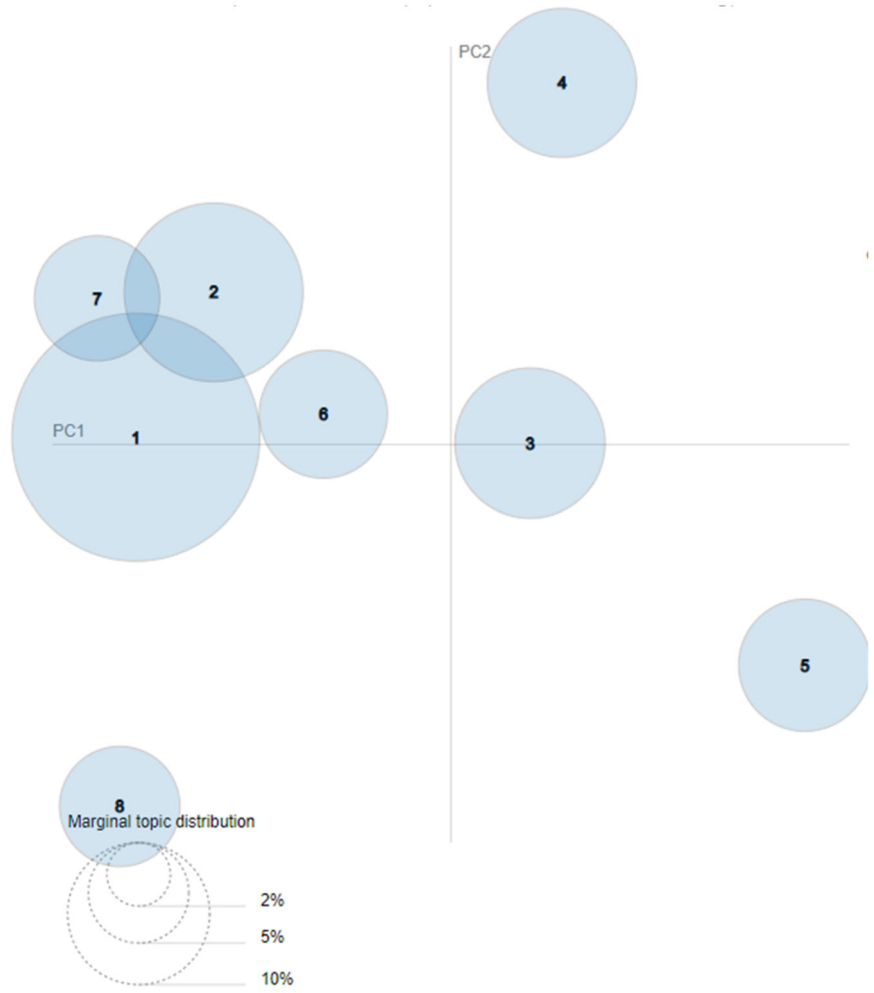


TABLE A1 Topic details emerging from LDA-based topic modeling.

Topic#	Topic Label	Top 30 relevant terms	Example quotes
1	Secure real-time digital access	Identity, service, access, cloud, enterprise, risk, security, include, organization, provide, management, application, datum, platform, community, premise, development, solution, infrastructure, new, need, real-time, lead, deliver, base, intelligent, product, help, accelerate, result.	<p>"...Seamless integration and trusted identity access control capabilities provide strong enterprise security while also enabling an improved user experience..."</p> <p>"...It offers real-time execution and process visibility to help our customers accomplish more..."</p> <p>"...consumers are demanding more digital access than ever before"</p>
2	Customer service and support	Guest, payment, solution, service, support, member, provide, process, base, mobile, check, automate, help, drive, staff, loyalty, contactless, streamline, office, need, platform, innovative, brand, world, client, self, device, new, management, global.	<p>"...Guest Service is one more step in that direction and is ideal for streamlining processes across the property..."</p> <p>"...This ensures that any answer a member gets across all digital channels is the same and that the content and member journeys are constantly improving over time..."</p> <p>"...easy-to-use software allows customers to track and automate collections activities, optimizing productivity and minimizing revenue leakage..."</p>
3	Digital payments	App, digital, mobile, card, financing, loyalty, brand, enable, purchase, solution, product, application, small, tool, deep, value, partner, financial, banking, provide, option, capability, launch, complete, process, fund, offer, contactless, simple, easy.	<p>"...Parkview Health now offers a frictionless experience through one stand-alone app for all of their needs..."</p> <p>"...transform every consumer's mobile phone into their own personal kiosk or drive-through..."</p> <p>"...offer convenient and secure financial transactions, self-service loyalty tools and applications..."</p>
4	Multi-channel integration	Restaurant, order, delivery, location, retailer, store, food, source, say, digital, open, year, create, online, sale, ready, seamless, world, allow, feature, time, platform, new, design, integrate, call, brand, guest, launch, day	<p>"...it's essential for retailers to get an efficient location-based pickup solution in place to maximize profits..."</p> <p>"...drive more traffic online and in-store by providing assistance and tools to create personalized in-store materials and online assets, including signage and banners..."</p> <p>"...provide that same seamless curbside and in-store pickup experience for customers..."</p>
5	Card payments & membership programs	Card, purchase, first, spend, credit card, class, apply, give, new, say, make, program, get, member, world, available, product, visit, introduce, pay, back, design, sign, service, month, account, CEO, launch, payment, twitter	<p>"...The card gives our customers the same unique Venmo experience they already know and love, in an intuitive, easy-to-use card and rewards program, that's all seamlessly managed and controlled from the Venmo app..."</p> <p>"...Expanding partners' payment options before the holidays will help them drive more sales to completion by enabling more consumers to finance their purchases..."</p> <p>"...The Verizon Visa Card, exclusively offered to Verizon wireless customers, is the only credit card that is eligible for the Auto Pay discount on Verizon, so new Auto Pay enrollees can get the best pricing available on Verizon Unlimited plans..."</p>
6	Marketplace development	Merchant, growth, increase, strong, commerce, new, say, industry, CEO, online, product, look, launch, way, platform, move, second, large, client, sale, forward, payment, excited, transaction, partner, partnership, part, team, secure, future	<p>"...the technology offers merchants the ability to increase approval rates, enhance customer retention and loyalty, reduce fraud, and simplify business operations..."</p> <p>"...native payment technology platform is designed to further remove payment barriers worldwide, empowering merchants with unparalleled global commerce capabilities..."</p> <p>"...deliver unified commerce solutions and expertise, helping our clients capture every payment opportunity that comes their way - no matter where or how they operate..."</p>

TABLE A1 (Continued)

Topic#	Topic Label	Top 30 relevant terms	Example quotes
7	Partner network support	Communication, statement, service, forward, solution, portfolio, provider, partner, flexible, look, center, requirement, deliver, compliance, enable, demand, financing, network, offer, video, advanced, increase, product, work, additional, connect, critical, step, leverage, simplify	<p>"...help our partners increase throughput, decrease wait time, improve staff efficiency, and, most importantly, drive incremental revenue..."</p> <p>"...platform was designed specifically for financial institutions and includes a rich set of support features and content that addresses the unique needs, processes and compliance requirements..."</p> <p>"...Streamlining the financing offer process and making it available from multiple sources enables retailers to drive online sales..."</p>
8	Fraud mitigation	Fraud, financial, solution, risk, intelligence, transaction, email, account, help, global, insight, ability, analytic, challenge, bank, base, banking, market, give, video, client, identify, grow, associate, combine, follow, face, headquarter, digital, AI.	<p>"...a powerful fraud risk scoring solution fueled by email intelligence to help companies balance a seamless user experience with robust fraud detection and prevention capabilities..."</p> <p>"...Gauges the risk associated with a consumer's email address through an email risk score..."</p> <p>"...technology solutions that stop identity theft and fraud with real-time identification authentication and age verification..."</p>

Abbreviation: LDA, Latent Dirichlet Allocation.