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Eliminating customer experience pain points in complex customer journeys through smart service solutions

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Abstract

Scholarly understanding of customer journeys has evolved from a linear, single service provider perspective to encompass complex service delivery networks that involve multiple touchpoints governed by various service providers. This intricate setting often gives rise to experiential pain points for customers. To investigate this phenomenon within the context of airport services, our research employs critical incident and problem-centered interviews as well as an analysis of 7192 online airport reviews. In Studies 1a and 2a, we explore the crucial pain points that travelers encounter throughout their airport journey. Complementing these insights, Studies 1b and 2b assess the impact of the identified pain points on travelers' emotions. Building upon a classification of pain points into information, performance, and hospitality themes, Study 3 further examines how smart service solutions, as new technologies, can address and resolve these pain points, ultimately enhancing the customer experience (CX). By accomplishing these objectives, our work contributes a comprehensive classification scheme for experiential pain points in complex customer journeys to the academic discourse on customer journeys. Furthermore, it establishes a connection to the emerging field of research on the impact of smart service solutions on the CX.

KEYWORDS

artificial intelligence, customer experience, customer journey, experiential pain points, service experience, smart service solutions

1 | INTRODUCTION

Customer journeys have become increasingly complex (Varnali, 2019), and nowadays, customers often need to follow sequences of service encounters that are organized within service delivery networks involving multiple service providers. These providers aim to deliver the customer-defined customer journey (Tax et al., 2013). For example, when traveling by airplane, customers first need to check in with the airline, undergo a security check provided by the police or a security firm, then follow the instructions provided by the airport operator to locate their assigned gate, and must finally adhere to the boarding procedure of the airline. Because of the numerous touchpoints and the involvement of multiple service providers, coordinating among them becomes challenging (Kwan & Hottum, 2014). Consequently, complex customer journeys are often plagued by various pain points that negatively impact the customer experience (CX) (McColl-Kennedy et al., 2019). These

pain points refer to the issues or challenges encountered during the customer journey (Kranzbühler et al., 2019).

While it is challenging to address these pain points due to the involvement of various service providers (Kwan & Hottum, 2014), promising solutions to enhance the CX during complex customer journeys lie in *smart service solutions*. These solutions are automated technology systems equipped with artificial intelligence (AI) that support the service delivery (Kabadayi et al., 2019). For example, smart service solutions can manifest as AI assistants that address customer inquiries, smart tracking systems that provide real-time item location, or planning tools that predict equipment breakdowns or peak demand hours. Practitioners already recognize the potential of these systems to alleviate many customer pain points and enhance the CX (Edelman & Abraham, 2022). However, scholarly research on the effects of smart services on the CX is still in its early stages (Hoyer et al., 2022), with initial studies primarily centered around the impact of smart services on customer behavior (Roy et al., 2017) and postservice evaluations (Castelo et al., 2023). Recent review papers acknowledge the conceptual gap between smart services and CX (Puntoni et al., 2021), highlighting the need for research that investigates how smart service solutions influence the customer journey and contribute to a more enjoyable CX (Ameen et al., 2021). However, there is a dearth of empirical research that directly connects these two topics, and existing studies are either purely experimental or solely focused on analyzing individual touchpoints (Mariani et al., 2022). Thus, due to the absence of empirical research in CX theory regarding how smart services enhance the CX throughout the customer journey (Gonçalves et al., 2020), we aim to address the following research questions:

(1) *How do experiential pain points impact CX during complex customer journeys?*
(2) *How can smart service solutions reduce experiential pain points during complex customer journeys?*

To address these research questions, we conducted three studies in an airport setting. In Study 1, we conducted interviews (n = 33) to identify common pain points experienced by travelers at airports. We classified these pain points and examined their impact on travelers' emotional states. In Study 2, we analyzed 7192 online airport reviews to validate and expand upon the findings from Study 1. Finally, in Study 3, we conducted interviews with both experts and travelers (n = 31) to explore how smart service solutions assist in alleviating the identified pain points and enhancing the CX.

While the touchpoints of customer journeys are typically well-defined (De Keyser et al., 2020), there is a scarcity of research articles focusing on the experiential pain points of the customer journey. The existing body of literature particularly lacks empirical contributions that concentrate on the holistic customer journey, encompassing various experience themes across multiple service touchpoints (Siebert et al., 2020). In this study, we extend the current scholarly research on customer journeys (Tueanrat et al., 2021) within the context of an airport as a chosen servicescape. Our aim is to explore a complex, multi-actor service delivery network (Tax et al., 2013) and make three contributions to scholarly research and practice.

First, we respond to scholarly calls for new thematic perspectives on the interplay between smart services and CX (Kabadayi et al., 2019), as well as for methodological diversity in the examination of CX and customer journeys. More specifically, we address the thematic demand for a customer-focused view on the impact of smart services on CX by emphasizing experiential pain points and customer emotions, in this way, moving beyond existing research that primarily focuses on company strategy (Huang & Rust, 2017) or service workforce perspectives (Paluch et al., 2022). Additionally, by integrating primary, exploratory (as opposed to experimental) data with secondary web-scraped data, we fulfill contemporary research calls for alternative methodological approaches in examining novel phenomena in customer journeys (Blanchard et al., 2022). These alternative approaches involve the use of databases and archival data as web data sources. Consequently, we use web-scraped data (Boegershausen et al., 2022) in the form of online traveler reviews to create knowledge of experiential pain points in complex customer journeys and point out opportunities to use smart service solutions to overcome them.

Second, while current scholarly discussions on CX offer ways to identify pain points in the customer journey, such as systematic customer journey management (Grewal & Roggeveen, 2020) or the application of new data analysis methods (Zaki & Neely, 2019), they have limitations in effectively resolving these pain points in complex customer journeys (Varnali, 2019). Thus, our study adds a new dimension to the discourse on pain points in CX research by focusing on their resolution rather than solely their detection. By doing so, we aim to push the field forward and advance CX theory (De Keyser et al., 2020). To address this gap, we develop a framework of experience pain points by identifying and analyzing 23 crucial pain points that are relevant within the context of service delivery networks, extending beyond the scope of our specific airport context. The framework proposes classifying these pain points into three experience themes (i.e., information, performance, and hospitality) and differentiating between two experience spheres (i.e., organizational vs. interpersonal). Adopting the perspective of smart services, this classification provides a blueprint for evaluating the impact of smart services on the CX. By doing so, we contribute to enhancing our understanding of CX theory (De Keyser et al., 2020), making sense of complex customer journeys (Tueanrat et al., 2021), and propelling forward the solution-oriented conversation about smart service solutions and CX.

Third, the current discourse on smart service solutions and the CX is still in its early stages. Therefore, we initiate a discussion on the impact of smart service solutions on customer emotions. While previous studies have touched upon the emotional aspect of the CX and service encounters (Kranzbühler et al., 2020), research on smart technologies has predominantly focused on the emotions evoked by interactions with smart technologies, such as service robots (Filieri et al., 2022). By addressing this gap, our study brings a fresh

perspective to the conversation, exploring how smart service solutions can potentially alleviate negative emotions associated with pain points across different experience themes. Through our research, we offer a novel perspective and empirical evidence on the significance of considering pain points (Kranzbühler et al., 2019) in the design of customer journeys, as well as the role of technology-driven service enhancements in mitigating these pain points and elevating the overall CX (Gonçalves et al., 2020).

2 | THEORETICAL BACKGROUND

The goal of the present research is to identify patterns in pain points experienced during complex customer journeys as well as determine how smart service solutions and AI can help overcome these. Before employing an exploratory research approach to investigate this question, we define and describe the key concepts used in this study and show what insights previous research already provides and where current knowledge gaps lie.

2.1 | CX and customer journeys

The focal concept of the present study is the CX during complex customer journeys. CX refers to customers' overall perception and evaluation of their interactions with a service provider's offerings and services, from initiating to completing the customer journey (Voorhees et al., 2017). As such, CX is not confined to a single touchpoint (i.e., a moment of direct or indirect contact between the customer and the organization; Kranzbühler et al., 2018). Instead, CX can be understood as "a customer's cognitive, emotional, behavioral, sensorial, and social responses to a firm's offerings during the customer's entire (…) journey" (Lemon & Verhoef, 2016, p.71). Therefore, CX must be analyzed for the entire customer journey.

The *customer journey* (Tueanrat et al., 2021) covers a sequential collection of touchpoints (Voorhees et al., 2017). For example, in an airport context, the customer journey includes touchpoints such as checking-in, passing security and immigration checkpoints, and navigating the airport by following signs. Techniques to "map" this customer journey include service blueprinting (Patrício et al., 2011) as well as alternative customer journey modeling (Siebert et al., 2020). All individual touchpoints of the customer journey contribute to the overall CX (Lemon & Verhoef, 2016).

While customer journeys and CX have received considerable attention in the marketing literature, most existing literature on this topic remains of a conceptual nature. For example, based on the conceptualization of the customer journey for purchase decisions (Lemon & Verhoef, 2016) and service encounters (Voorhees et al., 2017), many review articles have emerged on the conceptualization of CX (Mahr et al., 2019) and the customer journey more generally (Følstad & Kvale, 2018; Tueanrat et al., 2021). In contrast, empirical work is underdeveloped and fragmented (Gahler et al., 2022). For example, existing empirical studies primarily focus on developing scales to measure CX (Kuppelwieser & Klaus, 2021). Also, most existing research has looked at antecedents of CX (e.g., Kranzbühler et al., 2018), whereas downstream consequences of CX are largely unexplored (Roy et al., 2017). Lastly, existing empirical research often has a very narrow focus. In fact, besides the notable exception of Kuehnl et al. (2019) who employ a mixed-methods approach, broader, exploratory studies are widely lacking, having led to calls for such work (Blanchard et al., 2022). The present study follows this call and seeks to contribute to existing literature by qualitatively analyzing interview and online review data to address the previously under-researched area of experiential pain points and their impact on customer emotions.

2.2 | Pain points

Based on Kranzbühler et al. (2019), we define *experiential pain points* as issues or challenges that negatively impact CX. In an airport context, pain points can, for example, be long waiting times or unfriendly staff members. A closely related yet distinct concept are *fail points*, which are steps in the service process where things can go wrong (Wirtz & Lovelock, 2018, p. 241). An example of potential fail points at an airport could be the security or passport check, both steps in the service process where the aforementioned long waiting times can occur. Therefore, while a pain point refers to a negative experience itself (e.g., long waiting times), a fail point refers to a distinct step of the customer journey (e.g., the security check) where negative experiences (i.e., pain points) can occur. In the present work, we focus on the concept of pain points as we take a customer-centric (vs. service-process-centric) perspective, examining customers' overall (vs. process-specific) experiential pain points and identifying emotional consequences of these pain points for customers.

While classifications for related concepts exist (e.g., for service failures and fail points), to the best of our knowledge, no formal classification has been made yet for experiential pain points. The overarching concept of service failures has been classified into process and outcome failures (Smith et al., 1999), where outcome failures pertain to the final outcome of the service and process failures involve shortcomings or defects during the execution of the service. Also, for the related concept of fail points, Wirtz and Lovelock (2018) make a (somewhat implicit) distinction between procedural and informational fail points, "recognizing the fact that many service problems result from information failures" (p. 466). However, for pain points, which is the focus of the present paper, such a classification is lacking. This makes it challenging to identify, analyze, and address pain points, for both academics and practitioners. Therefore, in the present work, we inductively derive and validate a pain point classification based on 33 traveler interviews and 7192 online reviews.

In contrast to the classification of pain points, academic attention has been directed toward the identification of pain point causes. For

example, Bitner et al. (1990) analyzed 700 individual service encounters and determined that many pain points are caused by service employee attitudes and behaviors. In addition, Halvorsrud et al. (2016) identify four general sources of experiential pain points, namely the occurrence of ad-hoc touchpoints, irregularities in the sequence of logically connected touchpoints, failures at touchpoints, and missing touchpoints from the customer's viewpoint. Having conducted their study in an airport context, Gustafsson et al. (1999) find that customer activities such as resting, working, entertaining, socializing, and personal care are often undersupported or even hindered by airlines and airports, causing a major source of experiential pain.

Surprisingly, while customer emotions have always been closely linked to CX (Holbrook & Hirschman, 1982), the downstream effects of pain points on customer emotions are largely unexplored. For example, Rizvi and Popli (2021) call emotions one of the most crucial elements of CX. Also, in their recent conceptual framework for CX, McColl-Kennedy et al. (2019) propose that customer emotions are impacted by different value creation elements. These assessments find empirical support. For example, in their meta-analysis, Kranzbühler et al. (2020) show that emotions have significant effects on different aspects of CX. In the context of smart services involving service robots, one of the few studies that already exist on the topic demonstrates that smart technologies arouse positive and negative emotions in consumers equally to their human counterparts (Pantano & Scarpi, 2022). However, besides this focus on emotions in CX research, it is thus far unclear exactly what emotions are provoked by experiential pain points. This is not a purely theoretical gap, but also makes it challenging for service providers to devise service failure recovery strategies that appropriately address the customers' emotions. Here, the present work aims to contribute by identifying emotional consequences of pain points using interviews and online reviews.

Trying to determine how service providers can identify pain points, academic research has investigated methods for existing services as well as for services that are still being designed. Already in the design stage, service providers can minimize the occurrence of pain points by employing failure proofing (Chase & Stewart, 1994) and poka-yokes (Wirtz & Lovelock, 2018). For example, service experience blueprinting (Patrício et al., 2011) allows service providers to visually map out and analyze every service process step for potential pain points. Also, for services that have already been deployed, academic research has proposed multiple methods for pain point identification. For example, Wirtz and Lovelock (2018) suggest the use of fishbone diagrams and pareto analyses. In addition, Gahler et al. (2022) created and validated a CX scale that can be used for benchmarking, and Zaki and Neely (2019) suggest employing text-mining to process customers' data. Also, Roggeveen and Rosengren (2022) propose collecting and analyzing systematized knowledge (e.g., in the form of key performance indicators) for problem-focused pain point identification.

2.3 | Smart service solutions for pain point resolution

While it is a crucial first step to identify pain points, it is even more important to resolve them. Especially for complex service delivery networks, this is no easy feat. *Service delivery networks* are service settings in which multiple service providers must collaborate to deliver the customer journey (Tax et al., 2013). For example, in an airport context, the check-in is executed by a different service provider than the security check or the baggage handling. Prior research stresses that CX suffers in these constellations because of insufficient linkages between service providers, causing pain points at different steps of the customer journey (Kwan & Hottum, 2014). Crucially, the interconnected nature of service delivery networks makes it particularly difficult to resolve pain points, requiring multiple partners to coordinate and compromise to create an integrated solution. Due to this inherent complexity, smart service solutions are often proposed as a promising approach to overcoming pain points in this context (Gonçalves et al., 2020).

Smart service solutions describe adaptive technology systems that are equipped with AI and support the service delivery directly or indirectly (Kabadayi et al., 2019). In an airport context, examples of smart service solutions include virtual assistants that can answer customer questions, smart tracking systems that can provide the real-time location of items, or planning tools that can predict equipment breakdown or peak demand hours. These systems can be powered by three different types of AI (Huang & Rust, 2021). *Mechanical AI* is used for automation purposes to foster reliability and efficiency in processes that require standardized tasks with consistent outcomes. *Thinking AI* describes the capability of decision-making in a (bounded) rational manner. Lastly, *feeling AI* is the most advanced, not yet available type of AI, designed to handle emotional data and to evolve based on experience over time (Huang & Rust, 2021). In the present work, we seek to explore what type of AI is best suited for different types of pain points.

Recent conceptual and empirical works have linked smart service solutions to CX (Ameen et al., 2021). For example, Kabadayi et al. (2019) propose what they call the *smart service experience*, a concept that captures the way consumers experience and value data-driven, technology-enabled services. Similarly, Puntoni et al. (2021) integrate the two fields of AI and CX by acknowledging the value that smart technologies can have for consumers. Taking quantitative approaches, Lin (2022) finds that smart services in the form of intelligent unmanned convenience stores provide customers with novel shopping experiences, and Schepers et al. (2022) show that more sophisticated AI solutions directly impact customer emotions. Furthermore, Roy et al. (2017) demonstrate that smart CX enhances customer satisfaction to foster behavioral intentions and customer well-being in a retail environment. Finally, Sands et al. (2022) show how virtual service agents can mitigate the negative effects of service failures.

However, as Table 1 shows, few existing studies have gone beyond analyzing the impact of smart service solutions for more than one individual touchpoint. In fact, only Shen et al. (2020) find that smart

TABLE 1 Key studies on the research field of smart services linked to CX.

References	Research context	Research focus	Theoretical lens	Methodology	Key contributions	Focus	Focus on pain points
Roy et al. (2017)	Retail	Smart customer experience	Consumer research	Conceptual	Smart CX directly enhances satisfaction and reduces perceived risk toward smart retail technologies, which fosters behavioral intentions and customer well-being	Individual touchpoints	
Kabadayi et al. (2019)	Tourism and hospitality	Comprehensive conceptualization of the smart service experience	Service	Conceptual	Smart service experience provides empowerment, a seamless experience, enjoyment, privacy and security, and an accurate service delivery	Individual touchpoints	
Lee et al. (2020)	Tourism	Service design	Service	Conceptual	Development of a customer journey centered service design approach for smart tourism context	Customer journey	
Gonçalves et al. (2020)	Energy services	CX with smart services	Service	Interviews	Smart services enable a more autonomous experience, wherein customers can integrate a myriad of actors and artifacts	Individual touchpoints	
Shen et al. (2020)	Museums	Influence of smart technologies on customer journey	Technology	Field study	Smart technologies have an influence on the customer journey at all phases	Customer journey	
Puntoni et al. (2021)	–	Consumer AI experience	Consumer research	Conceptual	Authors identify four types of consumer experiences with AI: (1) data capture, (2) classification, (3) delegation, and (4) social	Individual touchpoints	
Ameen et al. (2021)	Retail	Consumer AI experience	Consumer research	Field study	Analyses how the integration of AI in shopping can lead to an improved AI-enabled customer experience	Individual touchpoints	
Lin (2022)	Retail	Consumer perceptions and attitudes toward smart retail services	Service	Field study	Model for evaluating consumers' attitudes and patronage intentions toward a new smart service	Individual touchpoints	
Sands et al. (2022)	Virtual agents	Service failure	Service	Experiments	Virtual service agents can mitigate the negative effects of service failure	Individual touchpoints	✓
Schepers et al. (2022)	Service robots	Impact of types of AI on customer emotions	Technology	Experiments	Influence of AI on positive emotions becomes stronger as the AI type becomes more sophisticated	Individual touchpoints	

TABLE 1 (Continued)

References	Research context	Research focus	Theoretical lens	Methodology	Key contributions	Focus	Focus on pain points
Hoyer et al. (2022)	–	Impact of new technologies on the customer journey	Consumer research	Conceptual	Framework for understanding the role of new technologies in each stage of the customer journey	Customer journey	
This study (2023)	Customer journey at airports	Experiential pain points resolution through smart service solutions	Consumer research	Mixed-methods involving critical-incident and problem-centered interviews, as well as web-scraped data analysis	Examine experiential pain points in travelers' CX originating from the information, performance, and hospitality level of the CX. Propose smart service solutions to re-design service encounters and improve CX.	Customer journey	✓

technologies affect the tourist experience across different phases of the customer journey, and Hoyer et al. (2022) propose a framework for understanding the role of new technologies during the entire customer journey. Here, we seek to not only show how smart service solutions can impact CX during the overall customer journey (Lee et al., 2020), but even do so for particularly intricate customer journeys within complex service delivery networks (Tax et al., 2013). In addition, as Table 1 further shows, existing research linking smart service solutions and CX have primarily focused on the added value of smart service solutions, such as increased flexibility, accessibility, and time savings (Lin, 2022). However, the solving of pain points has been largely left implicit (e.g., Gahler et al., 2022), if discussed at all. With our research, we aim to overcome this gap by exploring how various different smart service solutions can help overcome various different pain points.

3 | METHODOLOGY

3.1 | Research design

An exploratory research procedure was chosen because customer journeys within complex service delivery networks (Tax et al., 2013) have largely been neglected in prior research on customer journeys (Varnali, 2019) and CX (Tueanrat et al., 2021). The following sectionsas well as Figure 1 provide a summary of our research procedure. Please see Supporting Information: Web Appendix A for a more detailed elaboration.

3.2 | Study 1—Pain point identification via critical incident interviews

The purpose of Study 1 was two-fold. First, Study 1a sought to determine what pain points airport travelers experience during their airport journey. Second, Study 1b sought to better understand customers' emotional responses to the identified pain points. With these goals in mind, a critical incident technique (Bitner et al., 1990) was employed. We acquired n = 33 (airport) travelers through a purposeful sampling method (Patton, 2015, see Supporting Information: Web Appendix B) to the point of theoretical data saturation. Data collection was conducted with the help of an interview guideline based on a review of service experience and customer journey literature (e.g., Halvorsrud et al., 2016). All interviews were transcribed verbatim and read to ensure their correctness and readability. For Study 1a, a qualitative thematic data analysis was independently performed by two members of the author team to identify repeated patterns of meaning (Braun & Clarke, 2006). In a multistage iterative process, the two members of the team merged the data sources, filtered critical incidents, and connected experiential effects. Afterwards, they discussed the content and labeling until they agreed on a final set of pain point types and effects (see Supporting Information: Web Appendix C). For Study 1b, interviews were systematically analyzed for emotions expressed and described by interview partners. As an analyzing framework, the basic emotions of Plutchik's Wheel of Emotions (Plutchik, 2001) were used.

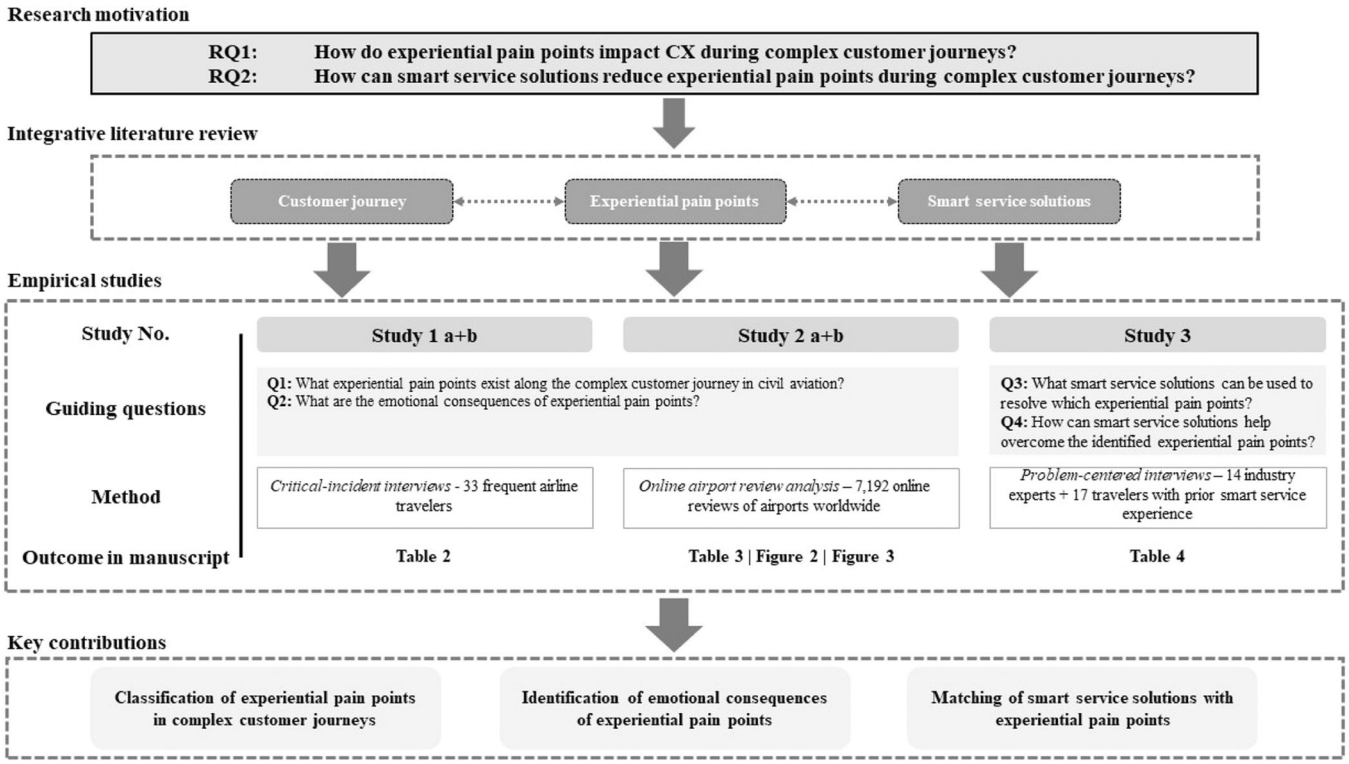

FIGURE 1 Research procedure.

3.3 | Study 2—Online review analysis with GPT-3 and Leximancer

Study 2 sought to validate and extend the pain points (Study 2a) and emotions (Study 2b) identified in interview Study 1 using a large dataset of airport online reviews. We obtained and analyzed 7192 verified online reviews for 607 different international airports posted between November 2016 and October 2022. The open-ended reviews were taken from a major website that allows travelers to evaluate the experiences with airports, unobtrusively giving insights into people's perceptions and emotions (Kozinets, 2002). For Study 2a, the searches for pain points within the 7192 reviews was conducted using the Natural Language Processing AI model GPT-3 developed by Open AI. GPT-3 is one of the world's most advanced transformer models. To ensure high data accuracy, two members of the author team independently and manually processed a random sample of 100 reviews. A subsequent comparison of the human-extracted and GPT-3-extracted pain points only showed minor differences. In total, GPT-3 extracted 32663 pain points.[1] For the analysis of the pain points, the text analysis tool Leximancer was used. Leximancer uses a Bayesian learning algorithm to identify key concepts, themes, and relationships based on terms' frequency and relative positioning to each other (Mahr et al., 2019). Thanks to its superior clustering algorithm, Leximancer is frequently being used in academic research for analyzing large amounts of unstructured text (Mahr et al., 2019). For example, Leximancer has been extensively used in hospitality research to analyze online reviews, social media, and news media (Goh & Wilk, 2022), as well as in psychology research, where its use has a long tradition (Cretchley et al., 2010). Because the dataset includes online reviews written before and after the outbreak of the COVID pandemic, an event that had a significant impact on the travel and aviation industries, we conducted additional robustness checks (see Supporting Information: Web Appendix E). For Study 2b, GPT-3 was used to determine and list emotions experienced and expressed by online airport reviewers. As for Study 1b, the basic emotions of Plutchik's Wheel of Emotions (Plutchik, 2001) were used as an organizing framework.

3.4 | Study 3—Problem-centered interviews

Study 3 was designed as a problem-centered interview study with corporate experts working for airport service providers ($n = 14$) and frequent airline travelers who had experience with smart service solutions in the airport context ($n = 17$). The experts were recruited through direct acquisition over professional networks and personal contacts, and the travelers through open calls and personal networks. Like Study 1, we looked for diversity in terms of professional or personal background and age groups (see Supporting Information: Web Appendices F and G). Data collection was conducted with the help of two versions (i.e., for experts and travelers) of an interview guideline focusing on the implementation of smart service solutions in the traveler journey. The data analysis followed a similar process as described for Study 1.

[1]It is important to point out that these are not 32,663 individual pain points. Therefore, the same pain point might be mentioned multiple times.

4 | RESULTS

4.1 | Study 1a—A framework for CX pain points

4.1.1 | CX themes

The traveler journey is a service journey that respondents generally link to dissatisfying experiences. When asked what they associate with airports, most respondents fall into negative wordings with an emphasis on pressure and stress. For example, Interviewee 27 states: "It is so stressful just because you go to the airport way too early and then wait anyway because you know the whole process takes forever." Respondents also repeatedly report facing disappointing experiences because their expectations were not met: "Stressors come into play when something goes unlike you expect it" (Interviewee 5). We classify experiential pain points into themes that provide a framework for pain point analysis in CX. We label these experience themes *information*, *performance*, and *hospitality*.

The *information* theme focuses on the basic need of travelers to know what is going on, and when and where to go (Interviewee 10). This includes receiving information from service staff (Interviewee 1), physical signs throughout the airport (Interviewee 11) or personalized notifications via e-mail or SMS (Interviewee 15). The information category serves as the necessary foundation for CX.

The *performance* theme entails the most essential jobs to be done and checkpoints to be passed for the traveler to complete their customer journey to make it onto the aircraft on time. It addresses travelers' utilitarian needs in an experience and triggers the efficiency components of the journey design. Factors include time scheduling (Interviewee 8) and staff performance (Interviewee 2, Interviewee 4) at different touchpoints, such as luggage drop-off, security check, passport check, and boarding. Pain points triggering this category put the traveler under severe psychological stress because they threaten the timely completion of the journey (Interviewee 23).

The *hospitality* theme encompasses those parts of the experience that make the traveler feel welcome and at ease. Many complaints relating to this theme are connected to the politeness and friendliness of airport staff (Interviewee 17) as well as to the behavior of peer travelers, such as queue-jumping (Interviewee 25) or noisiness (Interviewee 6). In addition, pain points in the hospitality theme are also related to the physical servicescape, such as the number and comfort of available seating areas (Interviewee 2), the number and condition of facilities (Interviewee 20, Interviewee 29), or the airport environment in general (Interviewee 18).

4.1.2 | CX spheres

Adding to our classification into experience themes (i.e., information, performance, hospitality), identified pain points originate from one of two distinct spheres (i.e., interpersonal vs. organizational). The *interpersonal sphere* encompasses pain points originating from travelers' interaction with other people, such as frontline service employees (FSEs), security check officers, or peer travelers. For example, as Interviewee 4 highlights, "it is not even about the [problem] alone, it is the people (…) this [person] was just incompetent."

The organizational sphere encompasses pain points caused by structural problems embedded in either individual processes (e.g., short check-in time windows, bad queue management practice) or in the servicescape of the airport (e.g., badly designed waiting areas, lack of signage, or dirty facilities). For example, "A friend of mine was at the check-in counter right on time, but the queue was so long. They eventually just closed the counter; she could not board the flight but had to pay the normal fee; did not get any refund. That is just outrageous" (Interviewee 20).

Table 2 summarizes and categorizes the pain points for each of the categories, as well as connects them to a relevant experience theme (i.e., information, performance, hospitality) and experience sphere (i.e., interpersonal vs. organizational).

4.2 | Study 1b—Identification of emotional consequences

The goal of Study 1b is to determine to what extent the identified pain points impact travelers' emotions and emotional well-being. Here, we coded the respondents' answers based on the basic emotions identified in Plutchik's Wheel of Emotions (Plutchik, 2001). On a high level, the emotions most frequently mentioned by interview partners are anger and fear.

Anger often takes on the form of frustration and is repeatedly mentioned in connection with the information and performance themes. More specifically, respondents often showed frustration when they did not receive sufficient information (Interviewee 9, Interviewee 11, Interviewee 13, Interviewee 15). For example, one respondent was extremely frustrated because she missed her flight because of poor communication: "There was a thunderstorm zone over Munich and thus all the planes were delayed. […] They said that I could go to the lounge again. But then I noticed after half an hour that the plane was no longer on the display board and when I went back to the gate, I saw that the boarding had already been completed" (Interviewee 15). Also, annoyance was an often experienced emotion by respondents, especially when it comes to the performance sphere. Reasons for being annoyed include long waiting times (Interviewee 16, Interviewee 33), delays (Interviewee 32), and other travelers who block queuing areas (Interviewee 19). For example, Interviewee 19 reports: "Often there is a certain order in which you are supposed to enter. I always find it totally annoying when some people don't listen at all."

Besides anger, respondents also frequently mention experiencing fear during their airport journey. Such fear appears to be particularly strongly connected to the performance theme. For example, Interviewee 14 describes how she was worried when checking-in her luggage: "[…] you also had to check in your luggage yourself and print out the luggage label yourself. And that wasn't obvious to me, and I didn't have much time left and was worried that I wouldn't be able to check in my suitcase." Beyond worries, respondents even

TABLE 2 Framework for experiential pain points in the traveler journey.

CX theme	CX sphere	Pain point	Explanation pain point	Sample quotes from interview partners
Information	Interpersonal	Uninformed frontline service employees (FSEs)	Unhelpful FSEs who are unable to provide requested information at different touchpoints.	*I still love [airline]. But it is about the people. This person was just incompetent. They just did not know.* (Interviewee 4)
		Unclear communication from FSEs	Travelers are not adequately informed what to do next and how and where they can get help.	*I experienced it a couple of times that I, even after asking several times, honestly did not know what the [FSE] wanted from me.* (Interviewee 24)
		Unhelpful FSEs	FSEs refuse to provide adequate help and react impudently to traveler requests.	*Sometimes I feel like the [FSE] do not realize, if we were not flying, they would lose their jobs. Make some effort.* (Interviewee 33)
	Organizational	Lack of (audible) announcements	Missing or scarcely audible public announcements on flight cancellations and delays.	*This one time, in [airport name] we were waiting. Nothing happened. Information was more than scarce.* (Interviewee 12)
		Lack of (timely) notifications	Travelers don't receive timely notifications on delays or cancellations when necessary.	*A simple on-time notification, e-mail or whatever would have been enough. I just wanted to know who I am flying with now.* (Interviewee 10)
		Inadequate signages	Number, location, size, and visibility of info signs in airports is not adequate.	*It is absurd how bad the signs and navigation are at [airport].* (Interviewee 25)
		FSEs unavailable	Insufficient number of info counters, service counters, and FSEs.	*Usually there is one line with one FSE who serves 200 people. Conflicts are just a matter of time.* (Interviewee 1)
		Lost or delayed luggage	Luggage is lost or delayed.	*That my suitcase was gone, this has already happened 2-3 times.* (Interviewee 18) *We had a stop in Munich and there some people got off the plane. The luggage was unloaded and one of our four suitcases was gone* (Interviewee 19)
Performance	Interpersonal	Slow FSEs	During different parts of the journey, travelers notice slow and inefficient processing by FSEs.	*Courtesy is nice, but the most important thing is that they do their job fast.* (Interviewee 22)
		Impeding peer travelers	Peer travelers slow down processes by being uninformed or uncooperative.	*Everyone knows what they are allowed to take with them, what they need to show at [touchpoint]. I do not want to be held up unnecessarily.* (Interviewee 32)
		Insufficient service recovery	No sufficient service recovery, for example, following overbooked flights, lost baggage, or cancellations.	*It is about willingness to solve the problem. Let me know what is going on and what to do.* (Interviewee 13)
	Organizational	Poor queue management	Long queues due to inefficient queuing policies and bad administration.	*Even if you divide [boarding] by passenger groups, everyone runs around, and nothing moves.* (Interviewee 10)*[Security check] is first come, first serve, really. You must fight for your spot. All packed.* (Interviewee 19)
		Poor time management	Insufficient timeframe or speed for processing of flight passengers.	*Check-In for example, why is it only fifteen minutes and why do I not know about it beforehand?* (Interviewee 6) *The whole experience is about waiting. That is the worst.* (Interviewee 8)
		Capacity limitations	Given capacities and structures at airports are insufficient to process the number of passengers.	*[Airport] is too small already. The immigration area, security check. It takes forever because it is too small.* (Interviewee 5)
		Distance between journey checkpoints	Time-consuming and often badly marked routes through the airport.	*If I had known before how far [the gate] is and how long it takes, I would not have booked [airline name].* (Interviewee 10)

TABLE 2 (Continued)

CX theme	CX sphere	Pain point	Explanation pain point	Sample quotes from interview partners
		Inefficient systems	Insufficient processes or technology systems cause delays in processing passengers.	*The security check always takes ages. They know days in advance how many people depart that day and at what times.* (Interviewee 1)
		Staff shortage	Unstaffed counters and checkpoints.	*They just should open enough counters to process all of us. Waiting at the airport is just annoying and stressful.* (Interviewee 31)
Hospitality	Interpersonal	Rude/abusive FSEs	Lack of interpersonal warmth and courtesy of FSE.	*I feel welcome if they treat me right.* (Interviewee 7) *[Personnel at the security check] are always rude and cold.* (Interviewee 21)
		Unequal treatment of travelers	Some travelers were checked more thoroughly than others.	*(…) and comparability is most important. I want to be treated as well as anybody else.* (Interviewee 22)
		Peer traveler misconduct	Misbehavior of other travelers, such as skipping the queue, rude conversations, and noisy behavior.	*Nervous travelers with noisy kids in hunt for the best spot in the queue. This is where apparently the worst parts of human nature come forth.* (Interviewee 6)
	Organizational	Inadequate facilities	Number, location, or condition of facilities are insufficient.	*Often you do not have enough toilets. They are either highly frequented and filthy or you walk a mile to get there.* (Interviewee 29)
		Inadequate seating areas	Number, locations, or conditions of seating areas are insufficient.	*As soon as you pass the checks you must sometimes run quickly to try to snatch a seat somewhere.* (Interviewee 6)
		Inadequate shop opening hours, arrangement, and navigation	Lack of options in terms of shops and restaurants or inappropriate opening hours.	*Many airports need better options in terms of shops and restaurants. What do you do before boarding, when you have an early or a late flight and everything is closed.* (Interviewee 27)

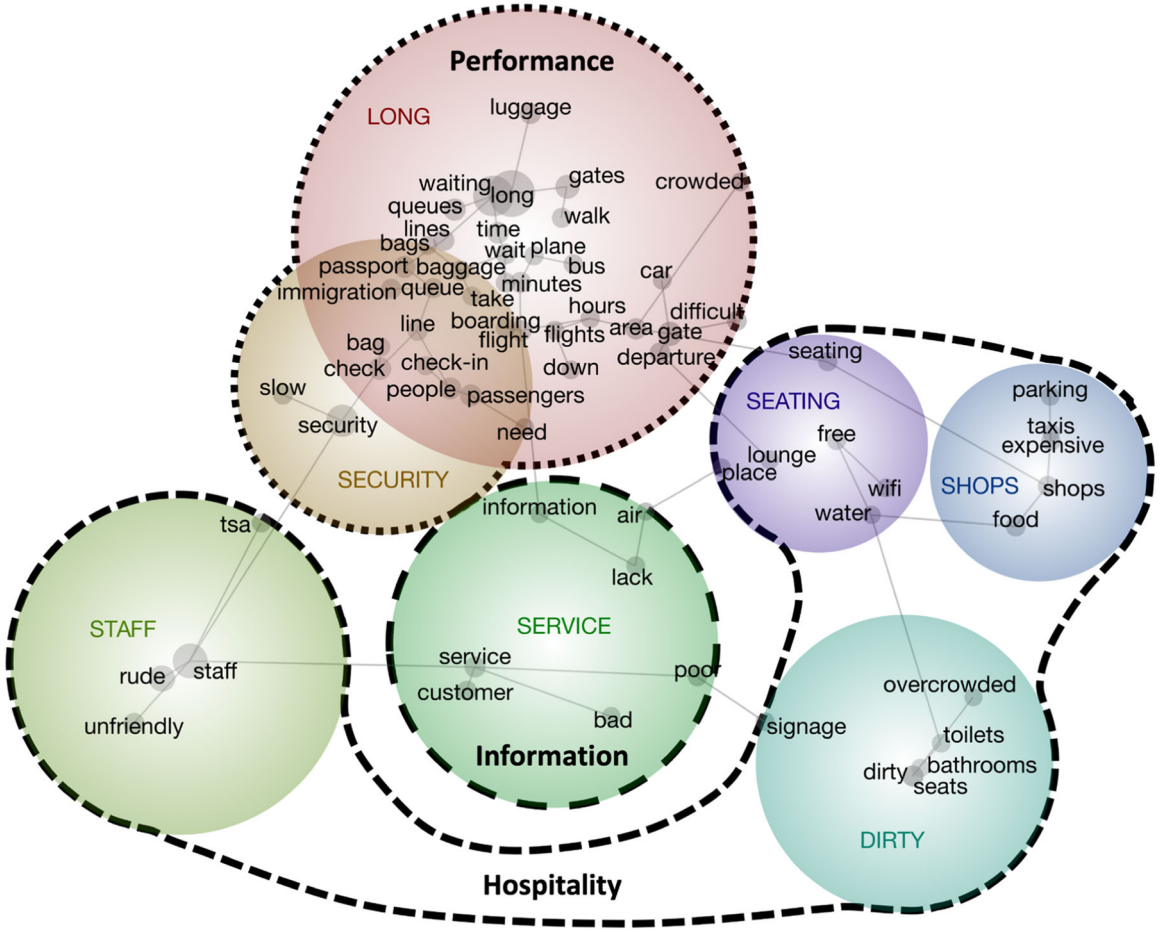

FIGURE 2 Pain point concept map produced by Leximancer.

experience anxiety. For example, respondents report being anxious to miss a flight (Interviewee 3, Interviewee 18) or lose their luggage (Interviewee 31). As Interviewee 18 describes: "Stress, lots of stress, and anxiety because I always fear missing the flight or meeting trouble at one of the checkpoints."

Therefore, as can be seen by the many reports of travelers who felt frustrated, annoyed, worried, or even anxious, pain points during an airport traveler's customer journey appear to have a concrete impact on their emotions and emotional well-being.

4.3 | Study 2a—Validating the pain point classification

The purpose of Study 2a is to demonstrate the external validity of the pain points identified in Study 1a. Figure 2 shows the concept map created by Leximancer for the 32663 pain point incidents extracted from the 7192 online reviews. Here, the same experience themes emerge as were identified through the interviews in Study 1a (i.e., information, performance, and hospitality). When zooming in on the individual themes, the reviews validate the pain points identified through the interviews in Study 1a and support our categorization of interpersonal and organizational spheres.

4.3.1 | Information theme

Like the interviewees, the online reviewers highlight informational issues during the customer journey. Leximancer names the theme surrounding these complaints *service* (see Figure 2). In line with the insights gained from the interviews, reviewers complain about issues at the interpersonal level (i.e., bad/poor customer service) as well as at the organizational level (i.e., poor signage, a general lack of information). However, as Table 3 shows, the information theme is mentioned relatively infrequently in real-world traveler complaints (6.36%) compared with the other two themes.

4.3.2 | Performance theme

The biggest proportion of pain points experienced by travelers at airports belongs to the performance theme (53.94%). In line with the interviews from Study 1, reviewers especially complain about long waiting times and queues. As can be seen in the concept map in Figure 2, these performance complaints are not isolated to a single step of a traveler's journey but occur at check-in, passport control, security, boarding, immigration, and baggage claim. While most complaints about these long queues and waiting times seem to occur

within the organizational sphere, blaming the airport in general, some complaints occur within the interpersonal sphere, directly blaming the slow staff. The reviews also support other performance-related pain points identified in Study 1 (e.g., long distances to the gates, overcrowded areas that make it difficult to catch flights).

4.3.3 | Hospitality theme

Interviewees in Study 1 indicated that their hospitality experience at airports was often negatively impacted by rude or unfriendly staff, dirty facilities, or a lack of facilities (Table 2). All these complaints come back in the online reviews, making the hospitality theme the second most complained about. In the 7192 reviews, 4141 separate complaints were registered about the unfriendly or rude staff and 3295 about dirty seats and bathrooms. Online reviewer complaints about the lack of facilities are grouped by Leximancer into the two themes named seating and shops (see Figure 2). These two themes capture complaints about a lack of seating possibilities, lounges, wifi, water, food, or shops.

TABLE 3 Experience themes with their absolute and relative frequency in online reviews.

Experience theme	Concept	Total count	% of total pain points
Information	Service	1833	6.36%
Performance	Long	9810	34.04%
	Security	5734	19.89%
Hospitality	Staff	4141	14.37%
	Dirty	3295	11.43%
	Shops	2393	8.30%
	Seating	1616	5.61%

In conclusion, the analysis of the 7192 online reviews shows that the traveler pain points extracted from the interviews with German travelers (Study 1) were representative of traveler pain points on a global scale. In addition, the review analysis underlines the adequacy of structuring pain points by experience types (i.e., information, performance, and hospitality) as well as pain point spheres (i.e., interpersonal and organizational).

4.4 | Study 2b—Emotional consequences of validated pain points

The purpose of Study 2b is to further demonstrate how pain points at airports negatively impact customer emotions by analyzing the emotions expressed in the 7192 online reviews. Figure 3 provides an overview of how often each of the eight basic emotions (Plutchik, 2001) was mentioned. While the present study is primarily interested in understanding how pain points provoke negative customer emotions, Figure 3 also shows the frequency of positive emotions (i.e., joy, trust, surprise, anticipation; Plutchik, 2001). In fact, the large number of identified positive emotions speaks for the quality and balance of the data set as it shows that customers did not purely use the review platform for complaints, but also for objective and reflective evaluations of their service experience.

Nevertheless, the most frequently mentioned and described emotions are disgust (29%), anger (24%), and sadness (17%). Disgust was predominantly mentioned in connection with the hospitality theme. For example, one reviewer writes, "Try not going to the toilets if you can: [...] the smell is horrible, not clean, often no paper towels available, the soap dispensers are just unpleasant to touch." Besides this hygienical aspect, disgust also often took on the form of boredom (Plutchik, 2001) as the airport did not offer enough shops, seating, wifi or other entertainment possibilities.

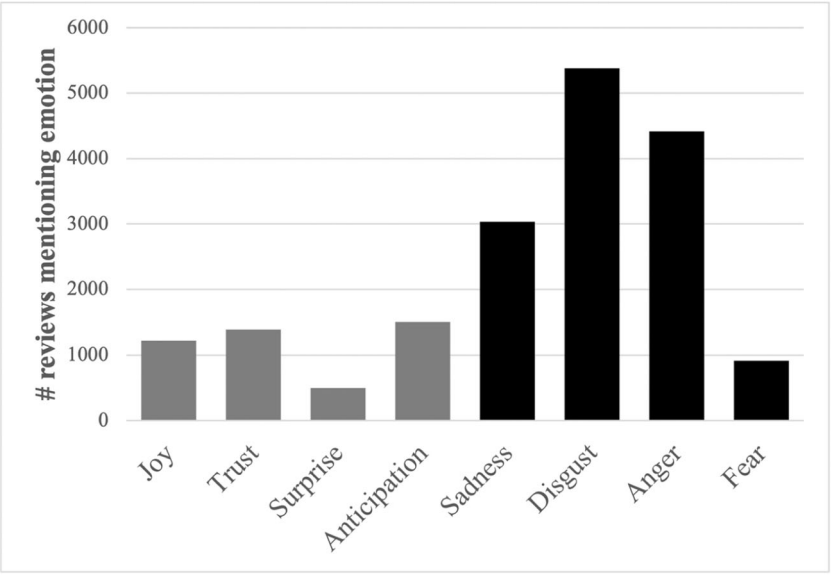

FIGURE 3 Overview of mentioned emotions in online reviews.

Anger and especially annoyance (Plutchik, 2001) were expressed in connection with all three themes (i.e., information, performance, and hospitality). For example, reviewers expressed anger about rude staff (e.g., "Worst security staff. The guy at security was extremely rude, not only to us but with all of the passengers out there."), long waiting times (e.g., "The worst airport I have ever been in. I spent 4hrs waiting in line to get through customs.") or a lack of information (e.g., "For a large airport, this is one of the worst I've come across. […], the information is lacking, and the online resources are lacking. We had […] to search for a map or info."

The emotion of *sadness* was often mentioned when an airport experience overshadowed other, more positive experiences. This occurred primarily in connection with performance and hospitality pain points. For example, one reviewer writes "After a great holiday, […], it's a shame the last thing you see […] is the rudeness and the barbaric behaviors of the security guys in the airport."

In contrast to the interviews of Study 1b, where fear was one of the most frequently mentioned emotions, only 5% of online reviews mention fear. This might be because most people reviewing airports are frequent flyers who are not easily scared by airports anymore or because people find it more difficult to acknowledge and express their fears when they know that their reviews are readable by a worldwide audience. Interestingly, when fear was mentioned, this was related to incompetent staff (i.e., the performance theme). For example, one reviewer witnessed "passengers setting off the metal detector but not being searched. Not passing bags through the x-ray machine. When I tried to raise concerns with the staff I was abruptly told to move on."

Therefore, in conclusion, pain points during the airport customer journey have concrete negative effects on travelers' emotions and emotional well-being, often prompting travelers to experience disgust, anger, sadness, and fear.

4.5 | Study 3—Application of smart service solutions to solve traveler pain points

With all the pain points disturbing the CX and causing negative emotions around airports, managers and service providers realize that they must leverage smart service solutions to make the traveler journey less stressful and more enjoyable. As Expert 10 puts it, the "painful way through countless touchpoints, from airport arrival to boarding is the biggest problem for the CX." Airport managers have thus identified the need for automation at critical touch points like security checks to relieve pressure and stress from travelers: "The transition from the public to the secure area is a maximum stress situation for the passenger. This is where we must start [with technology]" (Expert 8). This matches today's travelers' expectations, who expect a better experience in return for providing companies with their data: "Airports and airlines collect so much data. They should use it to improve the service. There is so much to improve" (Traveler 16). This includes the connection and interdependence of the physical and the digital world: "We have digital and analogue touchpoints. They must be integrated with each other" (Expert 10). Respondents in our study recognize that one of "the biggest [benefits] of AI lies in the performance level of airport processes – check-in, baggage drop-off, security check" (Traveler 3). Especially touchpoints that do not require empathy or emotional bonding between service employees and travelers are predestined to be taken over by AI. For low-involvement, low-complexity touchpoints, AI suits travelers' demand for "faster, more efficient processing. Less time to be wasted in airports. More quality time" (Traveler 16).

4.5.1 | Smart service solutions addressing information themed pain points

Real-time flight information

While automated notification systems are already in place to inform travelers about flight delays or gate changes (e.g., via SMS or email), the status quo is characterized by insufficient, delayed, and missing notifications (Traveler 7). Mechanical AI in the form of machine learning algorithms can learn to recognize patterns in the data that are indicative of delays or complications to adjust alerts and recommendations for travelers accordingly (Expert 6).

Smart luggage

Today, automated baggage handling systems already use advanced sensors and conveyor belts to automatically sort and transport luggage, reducing the need for manual handling and improving efficiency (Expert 8). On the traveler end, smart service solutions can improve service monitoring and recovery by providing real-time information on problems (Traveler 5), for example, alert travelers directly if a bag has been misplaced (Expert 10). This can be done using GPS, radio-frequency identification (RFID), or barcode scanning.

Airport navigation

Navigating travelers through the airport onto their flights is crucial for airports (Expert 8). Smart wayfinding systems are designed to help travelers navigate their way around an airport and find their way to their gate, restrooms, and other amenities (Traveler 17). These systems use a combination of sensors and beacons to detect the location of travelers within the airport (mechanical AI) and provide them with real-time directions to their destination (Traveler 10). Smart wayfinding systems thus enhance the CX by increasing convenience and reducing frustration and stress (Traveler 15).

4.5.2 | Smart service solutions addressing performance themed pain points

Smart kiosks and service robots

Smart kiosks and service robots allow travelers to check-in for flights, print boarding passes, and check luggage, reducing the need for human assistance and saving time on queueing. The type of thinking

AI used at these kiosks varies depending on the application scenario of the service. For example, some of these machines can offer intuitive communication via voice (Traveler 15), make data-driven and personalized recommendations to choose an optimal route or counter (Expert 1), or provide a highly social service encounter (Expert 7).

Automated security systems

Automated security systems use *biometric identification*, such as facial recognition or fingerprints, to verify the identity of travelers and allow them to move through the airport more quickly and efficiently (Traveler 1). For example, in the European Union, travelers can use self-service gates with integrated mechanical AI instead of queueing for the security officer if they possess a European passport (Expert 6). Another example is the use of mechanical AI in bag scanners to identify potentially dangerous objects. Generally, these identification technologies can be used at checkpoints throughout the traveler journey, where identification is needed, such as check-in, security checkpoints, immigration, and boarding, to automate the whole journey (Expert 13).

Smart queue management systems

Smart queue management systems help airport managers to optimize queue management at critical touchpoints (e.g., check-in, luggage drop-off, security gate, immigration), especially during peak times (Traveler 8). Using mechanical AI to monitor real-time data on queue length (Expert 12), staff levels can be adapted to reduce waiting times and traveler frustration. By using predictive algorithms on this data via thinking AI, it also becomes possible to adapt staffing schedules in advance and even adjust the flow of travelers through the checkpoint (Expert 9).

4.5.3 | Smart service solutions addressing hospitality themed pain points

Personalized recommendation systems

Recommendation systems can improve the CX at airports by using AI to provide travelers with tailored recommendations that are more relevant and useful to their specific needs and interests (Expert 4). These systems can be, for example, integrated into mobile applications, smart kiosks, or service robots. Besides making the CX more enjoyable, the recommendation systems for shops and restaurants can also generate additional revenue for the airport (Experts 7 and 11).

Smart cleaning scheduling

A new level of smart cleaning systems may use mechanical AI to optimize cleaning intervals to ensure that restrooms, terminal areas, and other areas of the airport are cleaned on a demand-actuated and adequate frequency. Sensors that can detect dirt, grime, and other contaminants enable the airport to direct cleaning personnel in real-time (Expert 8) as well as optimize cleaning schedules (Expert 14). Clean and well-maintained facilities do not only increase the overall CX but can also reduce the spread of diseases (Expert 10).

Overall, smart service solutions provide several contributions to enhancing the CX by eliminating experiential pain points. It is noteworthy that while conceptual research on AI already discusses feeling AI (Huang & Rust, 2021) to provide social comfort and solve emotional problems for customers, neither experts nor experienced travelers went beyond the scope of mechanical and thinking AI. This shows that, as of today, the scholarly concept of feeling AI is still unavailable and unimaginable in the real world. Consequently, our findings about how smart service solutions enhance the CX are limited to mechanical and thinking AI applications. Table 4 summarizes how different smart service solutions address existing experiential pain points to enhance the CX.

5 | DISCUSSION

5.1 | Key findings

The present research comprises three studies utilizing primary qualitative and secondary web-scraped data to investigate the negative impact of experiential pain points on the CX during complex customer journeys and to determine the potential of smart service solutions in mitigating such pain points. The focus of the study centers around the service delivery network as depicted by Tax et al. (2013) within airport contexts, which serves as a representation of intricate customer journeys as outlined by Varnali (2019). By delineating pain points that undermine the CX and elicit negative emotional responses, namely anger, disgust, sadness, and fear, this article sheds light on the impact of organizational and interpersonal touchpoints. These pain points pose a threat to the CX across three key dimensions: information, performance, and hospitality.

Discussing various implementations of smart service solutions equipped with mechanical and thinking AI, as elucidated by Huang and Rust (2021), the study endeavors to alleviate these pain points. First, these solutions improve communication channels and facilitate enhanced access to information for travelers, thereby fostering an experiential milieu characterized by an increased emphasis on acquiring relevant knowledge. Second, by reducing waiting times and optimizing efficiency, smart service solutions stimulate travelers' expectations concerning performance, effectively countering potential dissatisfaction arising from delays or inefficiencies. Lastly, through the provision of personalized travel assistance and recommendations pertaining to hospitality services, these solutions augment the hospitality experience and contribute to an elevated CX. Interestingly, academic discourse critically reflects on the potential downsides of smart service solutions, for example, in terms of service failure (Yam et al., 2021) or perceived risk (Lin, 2022). However, interviewed customers and industry experts did not appear to have these considerations front-of-mind, which is why our inductive analysis and contribution centers around the potential benefits of smart service solutions in resolving experience pain points.

TABLE 4 Study 3 results—Smart service solutions addressing experiential pain points.

CX theme	Smart service solution	Type of AI involved*	Pain points targeted	Impact on CX
Information	Real-time flight information	Mechanical	Inaudible announcements Missing notifications Uninformed FSEs Unclear communication from FSEs	Keep travelers in control of their journey by providing a solid information base
Information	Airport navigation systems	Mechanical	Bad signages Uninformed FSEs	Help travelers save time and stress Make travelers more independent of FSEs
Information	Smart luggage handling systems	Mechanical	Lost or delayed luggage	Make travelers feel in control by letting them monitor the location of their luggage Accelerate recovery in case of lost luggage
Performance	Smart queue management systems	Thinking	Poor queue management Poor time management Rude/abusive FSEs Slow FSEs	Help travelers avoid (annoying) human interaction Make travelers feel more self-reliant
Performance	Smart kiosks/service robots	Thinking	Uninformed FSEs Unhelpful FSEs Slow FSEs FSE availability Impeding peer travelers	Provide round-the-clock, standardized help Put the traveler back in control of the encounter
Performance	Automated security systems	Thinking	Uninformed FSEs Ignorant FSE Slow FSEs Unavailable FSEs	Make travelers more self-reliant and independent Reduce waiting time Improve control and efficiency perceptions
Hospitality	Personalized recommendations	Thinking	Lack of information Unhelpful FSEs	Experience tailored to the customers preferences
Hospitality	Smart cleaning systems	Mechanical	Dirty restrooms and airport areas	Improving the atmosphere of the setting Make travelers feel more welcome and at home

5.2 | Theoretical contributions

While scholarly studies focusing on the barriers and challenges associated with smart service solutions have received considerable attention, there is more work needed to understand the consumer benefits of smart service solutions (Mariani et al., 2022). Existing positivist research primarily investigates the influence of smart services on consumer behavior (Roy et al., 2017) and their impact on customers' post-service evaluations (Castelo et al., 2023). Considering the current state of literature on the effects of smart services on CX, this study contributes to the academic discourse on smart services and customer journeys (Shen et al., 2020) in multiple ways.

First, the present research responds to recent trends in consumer research that *advocate for a departure from traditional methods* such as surveys and experiments. In particular, the present study emphasizes the importance of employing exploratory studies (Blanchard et al., 2022) involving web-scraped data (Boegershausen et al., 2022) to uncover previously unexplored aspects of customer journeys. By adopting these alternative research approaches, the present study reveals nuanced facets of the customer journey that may have remained hidden otherwise. More concretely, it discloses a classification of experiential pain points through an in-depth exploration and analysis of real-world CX. While (at least implicit) classifications had previously existed for related yet distinct concepts, such as service failures (Smith et al., 1999) and fail points (Wirtz & Lovelock, 2018), a classification had been lacking for experiential pain points. Therefore, by identifying three types of experiential pain points (i.e., information, performance, and hospitality), the present work aims to facilitate future research on their identification, analysis, and resolution.

Second, the present research further enhances the existing literature by diverging from the conventional focus on three-step, single-provider customer journeys (Lemon & Verhoef, 2016; Voorhees et al., 2017). Instead, we shift our attention to analyzing the traveler journey within the context of airports, which is known for its inherent complexity (Varnali, 2019) and involves a network of multiple service providers (Tax et al., 2013). By exploring this specific domain, we address the under-researched *area of pain point analyses within customer journeys* (Kranzbühler et al., 2019). The decision to examine the customer journey at airports holds substantial value in the literature. Airports represent a unique setting characterized by a multitude of touchpoints and interactions between travelers and various service providers, such as airlines, security personnel, retail outlets, and transportation services. This complex network of service providers significantly impacts overall CX (Wattanacharoensil

et al., 2017), with customers often not being fully aware of which actor to blame or approach for service recovery. For example, an inaudible announcement could be caused by poorly trained and articulating staff as much as an improperly configured airport sound system. Similarly, luggage could have been lost because of an error by the airline, the departing airport, or the arriving airport. Consequently, because of the particularly complex nature of traveler journeys at airports, our study not only expands the scope *of customer journey analyses* (Halvorsrud et al., 2016), but also contributes to a more comprehensive understanding of the impacts of smart services (Kabadayi et al., 2019) on CX during even the most complicated and complex of customer journeys.

Third, while existing discussions have offered ways to identify pain points through systematic customer journey management and novel data analysis methods, they have fallen short of adequately addressing the resolution of these pain points within intricate customer journeys (Grewal & Roggeveen, 2020; Varnali, 2019; Zaki & Neely, 2019). At the same time, existing literature that investigates the impact of smart service solutions on CX has predominantly focused on distinct steps of the customer journey (e.g., Kabadayi et al., 2019) and merely implicitly touched upon the resolution of pain points, instead focusing on benefits such as increased flexibility, accessibility, and time savings (Lin, 2022). Therefore, to advance the field and contribute to the development of CX theory, our study introduces a novel perspective by linking smart service solutions to CX throughout the overall customer journey and exploring how smart service solutions can help overcome experiential pain points. In this way, our research contributes to the advancement of CX theory (De Keyser et al., 2020), aids in navigating the complexities of customer journeys (Tueanrat et al., 2021), and aims to propel the discourse toward practical solutions and tangible improvements in the CX (McColl-Kennedy et al., 2019).

Lastly, our study sheds light on the potential of smart service solutions to prevent negative customer emotions during complex customer journeys. More specifically, by demonstrating exactly how pain points impact customers emotionally, the present study targets the lack of studies that recognize emotional responses as consequences to experiential pain points (Roggeveen & Rosengren, 2022). In addition, by exploring how technology-driven enhancements can contribute to the resolution of customer pain points, we provide insights into the mechanisms through which smart services can elevate the overall CX and *foster positive emotional responses* (Schepers et al., 2022). Ultimately, our research enhances the knowledge of how smart service solutions can enhance CX (Gonçalves et al., 2020), helping service providers create more effective and emotionally gratifying customer journeys.

5.3 | Managerial implications

Based on this research, several managerial implications can be derived. First, the findings highlight the importance for managers in service organizations to recognize that pain points can have tangible negative effects on customer emotions. Varying degrees of negative emotions such as anger, sadness, and fear are of significant relevance. We agree with Kranzbühler et al. (2020), who propose that service providers should actively capture and monitor customer emotions throughout the customer journey. By incorporating tools like sentiment analysis and customer feedback survey analysis with text mining (Zaki & Neely, 2019), service managers can systematically gather data on customer emotions coming from painful service touchpoints. This proactive approach allows for the identification of pain points and enables managers to address them promptly, thereby enhancing overall CX.

Second, managers should pay particular attention to the varying degrees of negative emotions, such as anger, sadness, and fear, that customers may experience due to pain points. Understanding the specific emotions evoked by different pain points enables managers to develop targeted strategies for improvement. For example, if customers predominantly express anger, managers can focus on resolving issues related to service quality or responsiveness, that is to be provided by either human service employees or smart technologies (Esmaeilzadeh & Vaezi, 2022). In contrast to that, addressing sadness might involve providing more personalized support.

Third, many of the pain point incidents presented in our studies are connected to misbehavior of service employees. To effectively address these pain points and improve CX, service providers, including airport managers, must (i) decide which touchpoints can be outsourced to smart technologies and (ii) carefully manage and educate their service employees to foster a customer-centric culture within the organization. By emphasizing the importance of identifying and resolving pain points, managers encourage employees to proactively contribute to improving the CX.

Lastly, service managers need to acknowledge the power of smart service solutions to take over or augment various facets of the service delivery process throughout the customer journey. While they are prominent facilitators of great CX in performance-related service encounters (Huang & Rust, 2021), they are also valuable contributors to the CX in service settings that seem to require a human, personalized caring approach (Kipnis et al., 2022).

Thus, service managers need to engage in learning about experiential pain points and their effects on customer emotions to be able to purposefully deploy smart service solutions to resolve them.

5.4 | Limitations and future research

As with any research study, also our research faces some limitations. First, while we present the impact of experiential pain points on customer emotions, we do not measure the impact of implementing smart service solutions on customers' emotional state. We thus challenge researchers to intensify their effort in investigating negative emotions in unfavorable CX with smart services. Prior studies found that positive emotions have stronger effects on consumer behavior and service encounter evaluation (Kranzbühler et al., 2020). Thus, in the context of experiencing smart service encounters, positive emotions have been the center of attention for scholars (Filieri et al., 2022). However, negative emotions, among others sadness, fear, anger play a critical role in human interactions with

smart services (Pantano & Scarpi, 2022) and need to be understood to purposefully design and adapt smart services. Future research may thus turn to the emotional components (upsides and downsides) of smart service encounters to move the field forward.

Second, literature relating to smart technologies interprets the CX as a multidimensional concept (Puntoni et al., 2021) that involves not only emotional (Mahr et al., 2019) but also psychological factors (Paluch & Wünderlich, 2016). While we integrated the emotional level in our pain point analysis, our focus of interest did not account for a deep dive on the psychological level. In addition, people differ in terms of their technology-readiness, personal characteristics, and psychological conditions in experiencing smart technologies (Gonçalves et al., 2020). Future research should thus account for individual psychological factors when quantifying the impact of smart service solutions on the CX.

Lastly, the experiential themes of information, performance, and hospitality should be refined and elaborated in other service contexts to validate them and develop them into a broader template for the analysis and classification of pain points.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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SUPPORTING INFORMATION

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

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