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Identifying Information Needs to Enhance a Customer Engagement System

Al-Thani, Haya Qatar Computing Research Institute, Qatar | hayalthani@hbku.edu.qa
Jansen, Bernard J. Qatar Computing Research Institute, Qatar | jjansen@acm.org

ABSTRACT
Customer Engagement Management (CEM) is a customer-centric strategy that improves user experience, satisfaction, and long-term loyalty. This study explores the information needs within the CEM practices of a major international airline by conducting three sequential qualitative investigations involving key stakeholder groups: internal CEM team members, customers, and external travel agents. Through a triangulated analysis of interviews and survey data, the study reveals systemic information gaps and proposes design improvements for digital engagement strategies. Findings emphasize the significance of enhancing e-CEM platforms like websites and mobile applications and integrating social-CEM approaches to improve real-time communication and engagement. The results highlight how human-computer interaction (HCI) principles can support more effective information flows between organizations and stakeholders, ultimately strengthening customer engagement.

KEYWORDS
Customer engagement management, information needs, user studies, e-CEM, social media, customer satisfaction.

INTRODUCTION
Customer Engagement Management (CEM) is a customer-centric business approach aimed at enhancing user experience, perceived value, and satisfaction by aligning products and services with individual needs (Żyminkowska et al., 2019; Arnett & Badrinarayanan, 2005; Hassan et al., 2015; Wang, 2014; Sota et al., 2020). Core objectives of CEM include attracting, retaining, and cultivating customer loyalty to increase long-term value. Achieving these goals requires the systematic collection, storage, and analysis of customer data, supported by robust privacy and security measures (Hassan et al., 2015, Jansen et al, 1998). CEM platforms emerged as a multi-billion-dollar industry (Bala et al., 2024; Soltani & Navimipour, 2016). Within the airline sector, deregulation has spurred the proliferation of low-cost carriers, intensifying market competition and shifting industry dynamics (Hassan et al., 2015, Thirumuruganathan et al, 2023). Technological advancements have further reshaped customer behaviors, particularly regarding how travel decisions are made and engagement occurs. In this context, strategically deployed CEM systems can deepen airline-customer relationships. Moreover, CEM intersects meaningfully with Human-Computer Interaction (HCI), as its implementation relies on principles central to designing responsive and customer-focused systems (Gulotta et al., 2016; Huo et al., 2024; Sarkar et al., 2020).

Effectively gathering, storing, and managing customer knowledge (Jansen, Salminen, & Jung, 2020) is central to the success of CEM systems (Khodakarami & Chan, 2014). However, these processes must be preceded by a clear understanding of the organization's business information needs (Vuori, 2006) and those of the individuals who use and maintain the system (Cole & Wilson, 2024; Stringfellow et al., 2004). Identifying such needs is a complex task, as it must account for the organization's specific goals, workflows, and contexts. A nuanced understanding of the organization's information journey is essential for designing effective CEM systems and optimizing human-information interaction (Du, 2014).

Although CEM has gained traction as a strategic approach, the specific information needs that underpin its processes remain underexplored in the literature. This study addresses this gap by investigating the information needs embedded within the CEM strategy of a major airline, offering insights that can inform both research and practice. Drawing on three stakeholder perspectives, internal CEM team members, customers, and affiliated travel agents, the research employs a multi-method qualitative design, including semi-structured interviews and surveys. The case study organization mirrors the structure of many large, customer-facing enterprises, enhancing the generalizability of the findings. By triangulating data across these groups, the study reveals systemic gaps in CEM-related information flow and proposes strategies for improvement. In particular, the findings underscore the importance of clear, responsive communication between organizations and customers to build sustained loyalty. Enhancing digital engagement through robust e-CEM and social-CEM strategies emerges as critical for organizational development.

This study also contributes to Human-Computer Interaction (HCI) by framing CEM as an information-rich interactional ecosystem shaped by organizational systems and user experiences. CEM systems function as socio-technical infrastructures where the usability, accessibility, and interpretability of information directly affect customer engagement outcomes. From an HCI perspective, our findings reveal how poor interface design, opaque communication, and fragmented information delivery compromise user trust and engagement, issues central to HCI concerns. Furthermore, this research demonstrates the need for participatory and user-centered design approaches in developing e-CEM and social-CEM platforms, emphasizing that digital engagement systems must accommodate

interaction's cognitive, emotional, and cultural dimensions. We highlight new directions for designing responsive, inclusive, and context-aware customer engagement systems by grounding CEM practices in HCI principles.

RELATED WORK

The concept of CEM, referred to as customer relationship management in earlier literature, was introduced by the Gartner Group in 1993 and has since become a focal point in business practice and academic research (Galbreath & Rogers, 1999). Numerous studies have shown that CEM significantly improves customer relationship performance by fostering stronger, data-informed interactions between organizations and their customers (Keramati et al., 2010; Khan et al., 2022). Soltani and Navimipour (2016) identify several key information-related challenges that hinder the

- **Data Mining**: The process of extracting actionable insights from large-scale customer datasets to inform strategic decision-making.
- **Data Quality**: A multidimensional construct encompassing accuracy, timeliness, completeness, and consistency, all critical for reliable customer engagement.
- **E-CEM**: Using digital technologies, such as websites, mobile apps, and automation tools, to support and scale customer engagement strategies.
- **Knowledge Management**: The systematic identification, organization, and dissemination of customer-related insights, including needs and complaints, across the organization.
- **Social-CEM**: Integrating social media platforms into customer engagement efforts to foster sustained, direct, and reciprocal relationships with customers, enhancing traditional CEM approaches.

Globalization, deregulation, and market saturation have intensified competition in the airline industry, elevating the strategic importance of Customer Engagement Management (CEM). Research by Wang (2014) and Gil-Gomez et al. (2020) shows that customer loyalty is significantly influenced by relationship bonding, strategic investment, and service quality—factors that are especially vital for sustaining competitive advantage in this sector. As a result, cultivating long-term, trust-based customer relationships has become a foundational element of airline CEM strategies. Loyalty remains a central theme in contemporary CEM research (Khan et al., 2022), particularly in travel and hospitality contexts, where complex engagement dynamics demand further scholarly attention.

Identifying information needs is a foundational step in many information management frameworks, serving as the basis for the design of effective systems and processes (Vuori, 2006). An information need reflects the drive to acquire data that satisfies an explicit or implicit requirement. However, such needs are often ambiguous and difficult to articulate, making them inherently challenging to define and address (Sarkar et al., 2020). Research in this area explores information needs from multiple perspectives, emphasizing their significance for both individuals and organizational groups (Khodakarami & Chan, 2014). In business contexts, information needs typically involve critical data about an organization’s operations, environment, and strategic direction (Vuori, 2006). Clearly defining these needs is essential for optimizing the use of information resources and supporting effective decision-making.

Du (2014) observes that the information behavior of marketing professionals remains insufficiently examined within information science research. Ashill and Jobber (2001) contribute to this gap by investigating the information needs of senior marketing executives, framing these needs as the specific characteristics of information sought during decision-making. They emphasize that high-quality information is defined by its capacity to support strategic and operational decisions effectively. Expanding on this, Blandford and Attfield (2010) conceptualize the "information journey" as a four-phase process: recognizing an information need, acquiring relevant data, interpreting it about a specific goal, and applying that interpretation to guide action. This framework provides a valuable theoretical lens for analyzing the information practices of diverse professional groups.

The literature on Customer Engagement Management (CEM) and information needs underscores the significant transformation of CEM in the digital era, with broad applications across sectors such as banking (Bachir, 2021). Tang et al. (2011) emphasize that the information organizations rely on is fundamentally linked to their core mission and strategic objectives. At its foundation, CEM is a customer-needs-driven process that involves two critical phases: employing information technologies to derive insights into customer expectations, and developing targeted programs to fulfill those needs (Arnett & Badrinarayanan, 2005; Petre et al., 2006; Stringfellow et al., 2004). A strong CEM strategy begins with a precise understanding of customer information needs, which form the basis for generating actionable customer knowledge. This knowledge is typically organized into three types: knowledge for customers (information shared to satisfy customer needs), knowledge about customers (data collected by the organization), and knowledge from customers (feedback and insights gained through customer interactions) (Khodakarami & Chan, 2014).

The success of a Customer Engagement Management (CEM) strategy depends significantly on an organization’s capacity to integrate and synthesize knowledge from diverse sources. Rather than focusing solely on transactional

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data, CEM encompasses complex, knowledge-intensive processes that require coordinated information management across departments (Bueren et al., 2004). Adopting advanced AI technologies can further strengthen these processes by accelerating knowledge generation and enhancing strategic decision-making (Libai et al., 2020). Studies show that effective CEM implementation is closely linked to improved organizational performance (Khashab et al., 2020; Quzwen et al., 2021). Alokla et al. (2019) comprehensively classify the evolving components that shape CEM research, offering a roadmap for future investigations. However, while the literature has grown, there remains limited insight into CEM strategies' practical implementation and operationalization. Additionally, cross-industry evaluations are needed to extend the relevance and generalizability of CEM practices (Alokla et al., 2019). In particular, the information needs that drive CEM processes, especially within the travel industry, are insufficiently explored. This raises critical questions: What internal information guides organizational CEM efforts? What information do customers expect to receive? How do external stakeholders, such as intermediaries, contribute to and rely on these information flows? And how are these needs interconnected? These questions serve as the foundation and impetus for the present study.

RESEARCH OBJECTIVES

This research aims to evaluate the effectiveness of information flows within organizational CEM systems, focusing on identifying key challenges and areas for improvement. Using a major international airline as a case study, the study investigates how information needs are addressed across multiple stakeholder groups. The research is guided by a series of questions designed to uncover gaps in CEM practices and inform more effective engagement strategies. These research questions (RQs) are:

- RQ01: *What are the key CEM information needs of the airline?*
- RQ02: *What are the key information needs of the airline's customers?*
- RQ03: W*hat are the key information needs of travel agents?*
- RQ04: *What are the similarities among the information needs of these three stakeholders?*
- RQ05: *What do the similarities among the stakeholder information needs inform about the company CEM information needs alignment?*

Study Overview

The airline examined in this study is a globally recognized industry leader, operating one of the largest international networks serving 160 destinations across the Asia Pacific, Middle East, Africa, Europe, Latin America, and North America. This research evaluates the effectiveness of the airline's CEM strategy by identifying key information needs and uncovering areas for improvement. The study comprises three targeted investigations, each examining a distinct stakeholder group: the internal CEM team, customers, and external travel agents (Chivukula et al., 2023). Participants articulated conscious and subconscious information needs, captured through open-ended interviews and survey responses. These needs were then categorized into two groups: strengths, representing needs that are currently fulfilled, and weaknesses, reflecting unmet or inadequately addressed needs. Table 1 presents an overview of the three studies and their respective focus areas.

Travel agents were selected as the third stakeholder group because they play a critical intermediary role in the customer engagement ecosystem, particularly within the airline industry. Despite the rise of direct digital channels, a substantial portion of customers—especially those organizing complex, group, or corporate travel—continue to rely on agents for information, recommendations, and booking services. Travel agents possess deep domain knowledge and interact regularly with airline systems and customers, uniquely positioned to identify information bottlenecks, misalignments, and unmet needs that may not be visible to internal teams or end-users. Including travel agents enables a fuller triangulation of stakeholder perspectives, enriching the analysis of how customer information flows, and fails to flow, across the organizational boundary.

The methodological decision to use interviews for the CEM team, travel agents, and customer surveys was guided by the distinct nature of each group's relationship to the airline and the type of insight sought. For internal CEM staff and external travel agents, semi-structured interviews were appropriate to elicit rich, context-specific narratives about organizational processes, decision-making, and frontline experiences. These groups were relatively small, and in-depth interviews allowed for exploring tacit knowledge and emergent themes. In contrast, a survey was used for customers to reach a broader and more diverse sample, capturing quantitative trends and open-ended responses. This approach enabled the study to balance scale with depth, leveraging interviews for interpretive insight and surveys for breadth and generalizability.

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Study	Study 1: CEM Team	Study 2: Customers	Study 3: Travel Agents
Method	Semi-Structured Interviews	Online Survey	Semi-Structured Interviews
Participants	9 Participants (5 Male, 4 Female, 0 Other)	58 Participants (34% Male, 66% Female, 0% Other)	9 Participants (6 Male, 3 Female)
Aim	To understand CEM information needs, information use, and the challenges they face.	To investigate customer satisfaction to understand information needs for the airline better.	To understand what information these external stakeholders need to satisfy customers.

Table 1. Summary of Method, Participants, and Aims for Study 1, Study 2, and Study 3.

RESULTS

Results Study 1: CEM team interview

The first study focused on the airline's internal CEM team, whose primary objective is to deepen their understanding of customer behavior to enhance overall customer experience and satisfaction.

Participants

The airline's CEM team consists of nine members who participated in this study. One-on-one interviews were conducted in participants' workplaces following IRB-approved consent procedures. Initial questions gathered demographic information, including age, nationality, job history, and tenure with the airline. Subsequent questions explored each participant's role within the CEM team and broader reflections on organizational practices and customer engagement. Table 2 summarizes the team's roles and associated responsibilities.

Role	CRM Manager	Customer Research Analysts	System Process Officers	Data Scientist
Participants	1	4	3	1
Duties	The manager is responsible for supervising the organization's CRM team.	Analysts use customer data to investigate customer behavior, needs, and demographics. They are divided into three tasks: Customer Care, Clustering and Mission Analysis, and Commercial Reports.	They manage and maintain the airline's customer-centric database.	They apply more advanced techniques, such as data mining and machine learning.

Table 2. CEM Team Duties

Coding Methodology

Following transcription, interview data were analyzed using grounded theory's open and axial coding procedures (Strauss & Corbin, 1998). As a qualitative methodology, grounded theory emphasizes the development of a theory grounded in systematically collected and analyzed data. During the open coding phase, initial concepts were extracted from participant responses. Axial coding then organized these concepts by identifying relationships and patterns, forming the basis of a cohesive analytical framework.

Detailed notes were taken during each interview to develop the coding framework, and all recorded sessions were transcribed. The interviewer actively observed and documented emerging patterns and notable trends throughout the data collection process. As interviews progressed, recurring themes began to surface, prompting a re-examination of earlier transcripts to identify consistent concepts and relationships. These recurring themes were then assigned open codes, forming the basis for subsequent analysis. Table 3 presents the set of extracted themes.

Open Code	Description
Customer-Centric Database	The airline shifted from a transactional database to a customer-centric database.
Focus on Loyalty Program Members	Loyalty program customers are the highest-value customers.
Customer Satisfaction Surveys	Customer satisfaction surveys are conducted frequently for feedback.
Personalized Marketing Campaigns	Marketing campaigns are targeted at personalizing campaigns to customers.
Old-Fashioned Working Culture	The airline's organization is very bureaucratic and slow. They don't adapt to change quickly.
Data Accuracy	The database has accuracy, redundancy, and completeness issues.
Customer Segmentation	Airline clusters customers into market segments for targeting and behavior analysis.
Customer Engagement	Airline engagement with customers through different communication channels, such as email and social media.
Website and Mobile App Personalization	The airline's website and mobile applications allow customers to access multiple information and functionalities.

Table 3. CEM Team Interview Open Codes

The open codes were analyzed to identify conceptual relationships and were grouped into broader categories based on shared attributes. These categories were further classified as either information strengths or weaknesses.

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Strengths denote areas where participants perceived the airline as effectively meeting its information needs, while weaknesses reflect domains where information gaps or inefficiencies persist. Collectively, these classifications illuminate the organization's core information needs as articulated by the CEM team.

Information Strengths.

Customer-Centric Database: The CEM team at the airline has been working to create a unified, customer-centric database: "*[the database] now is very customer-centric.*" (P1) The CEM team often uses the database for analysis and report generation. Many departments request their aid to understand changes in customer trends: "*There was a decline in passengers. So we tried to understand if people are traveling less. If they are traveling the same as last year, why are they choosing [the airline] less?*" (P4). By storing data as customer profiles, the CEM team can better gather data that can provide vital information needed to support their decision-making processes.

Focus on Loyalty Program Members: Customers who are a part of the airline's loyalty program (LP) are the highest value customers: "*trying to retain customers who are loyal to us, that is a priority. Since the cost of getting new customers is much higher compared to retaining existing customers.*" (P3) The LP members database is smaller than the full customer database; however, it is much richer. The CEM team recognizes the value of gathering as much data concerning LP members to equip managers with the proper information to serve those customers better.

Customer Satisfaction Surveys: The CEM team handles customer satisfaction surveys and is making many improvements there. The response rates for these surveys used to be very low; around 2 to 3%. What the team did to address this is to segment the survey: "*what we did is grouped [the survey] into four. . . We just give a sampling at each touchpoint; booking, boarding. We noticed that the response really went high, almost doubled 4 to 5%.*" (P2) They are also planning to launch more advanced Voice of the Customer (VoC) tools: "*so far we have some VoC and marketing tools being purchased. We are moving forward with getting the tools we are missing.*" (P2) The information gained from these surveys provides valuable insight and knowledge about customer experience and feedback at different touchpoints. That information can help the airline maintain customer satisfaction.

Personalized Marketing Campaigns: The team strives to use available customer data to personalize campaigns and services: "*the more you know your customers, the better you can offer them promotions.*" (P8) Instead of sending out mass campaigns to all their customers, the airline uses customer data along with other personalization tools to deliver offers that feel tailored to customer's needs. The team is also being careful not to overwhelm customers: "*one concern is one customer is receiving multiple emails from different teams... some might take the communication as spam*" (P6). The airline is using the data they have about customers to create these personalized marketing strategies to fulfill their needs.

Information Weaknesses.

Bureaucratic Work Environment: While the CEM team is expected to operate with agility and responsiveness to customer feedback, participants reported that the broader organizational culture remains highly bureaucratic. As one team member noted, "*things move slowly here. It is very old-fashioned*" (P4). This sluggish pace hinders the timely use of information for decision-making. A persistent barrier to effective engagement is limited information sharing across departments: "*data sharing is a big issue*" (P5). Furthermore, participants expressed concern that the value of knowledge generated through data analysis is not always recognized or trusted: "*it will take time for departments to understand the value of knowledge*" (P5). For CEM to be effective, information must be integrated and shared across the organization. One of the core strengths of CEM lies in enabling cross-functional insights (Bueren et al., 2004), which cannot be realized without a more open and collaborative information environment.

Data Accuracy: Data accuracy, redundancy, and completeness are big challenges for CEM: "*we have duplicate profiles.*" (P2) Some customer profiles aren't as rich or as complete as well: "*we need to work on profile completeness. As in to have the full picture of all the customers.*" (P3) These issues are very hard to address and can affect CEM's day-to-day duties. The quality of the airline's data is greatly related to its information needs. If the data is not stored and maintained properly, the knowledge extracted will not accurately reflect customers.

Customer Segmentation: Customer segmentation is used to group customers based on criteria like travel mission: "*segmentation is used a lot in campaigns. We target based on different segments.*" (P6) The segmentation process the airline uses is not that advanced: "*some clusters we get from k-means clustering, but some we add manually based on business requirements.*" (P7) Understanding customer segments is essential in understanding the needs.

Customer Engagement: The way the airline engages with customers is minimal. The airline mainly uses email for marketing campaigns: "*people don't stick to email now. We have to go with the channels the people prefer in their culture.*" (P2) The airline has one of the biggest followings on multiple social media platforms. They can gain a lot of insight about their customers if they use the medium correctly: "*if we had [social media] information it would be very valuable.*" (P4) The CEM team doesn't work with the social media team or use any of their data. social media can be a powerful source of customer information.

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Website and Mobile App Personalization: The airline's website and mobile application are two resources that are underutilized by the CEM team. They do not track users on the site: "*we can do more improvements with personalization.*" (P9) Many aspects of the website and app are not user-friendly as well: "*using miles is not user-friendly.*" (P4) The LP miles interface is very hard to use and information about miles is hard to look up. The website and application can be a valuable source of information for and from the customer.

Results Study 2: Customer Survey

The second study was a customer survey with multiple-choice and open-ended questions. This study aims to understand how customers perceive the airline and what they think are its strengths and weaknesses.

Participants.

A total of 58 customers participated in the survey, which was distributed electronically. Following IRB-approved consent procedures, demographic data were collected, revealing that 66% of respondents identified as female and 34% as male. The majority of participants were between the ages of 25 and 34, with 79% identifying as local residents of the airline's host country. Additionally, 87% of respondents were enrolled in the airline's LP. Quantitative items were used to capture demographic profiles, while open-ended responses were analyzed using a coding approach consistent with the first study. Table 4 presents the resulting codes and their descriptions. The information strengths and weaknesses from this analysis offer insight into the information customer needs.

Open Code	Description
Loyalty	Surveyed customers are very loyal to the airline.
Quality	The product and service quality of the airline is very high.
Website and mobile app	Surveyed customers prefer booking directly with the website and app. It is highly used.
Social Media	Many customers follow the airline's social media accounts to keep up to date with their news and promotions.
Prices	Customers believe that airline ticket prices are very high.
Miles	The LP miles are hard to understand, and many customers express their inability to use miles effectively.
Misleading promotions	Many of the airline's marketing promotion guidelines are hard to understand.

Table 4. Customer Survey Open Codes

Information Strengths

Loyalty: A significant number of customers surveyed expressed strong loyalty and national pride toward the airline. As one participant stated, "I will patronize all things concerning [this country] and that includes [the airline]" (P13). This sentiment may be attributed to many respondents being local residents. Most participants were also members of the airline's LP and reported exclusively flying with this carrier. In addition to their loyalty, participants expressed a clear desire to receive regular updates and information about the airline's offerings, and services.

Service Quality: Participants consistently praised the high quality of service provided by the airline. One customer noted, "I love to be onboard [the airline] as all the staff are friendly and accommodating" (P22). Many respondents expressed strong satisfaction with the overall service experience, particularly with in-flight offers. In addition to valuing service quality, customers expressed interest in staying informed about new products and services, such as aircraft upgrades. The airline can strengthen engagement and better meet evolving customer expectations by addressing this demand for timely and detailed service information.

Website and Mobile App: Many surveyed customers reported a strong preference for booking directly through the airline's website and mobile application, citing ease of use and accessibility. As one participant noted, the platform is "quick and easy to access" (P15). The mobile app was particularly valued for on-the-go functionality, including features like airport maps, gate location, flight status, and baggage updates: "the map of the airport shows you the location of the gate. Flight updates. Baggage updates" (P11). In addition to booking, customers regularly use online services such as e-check-in and seat selection. Participants emphasized the importance of having timely, accessible information through these digital platforms to support a seamless travel experience.

Social Media: Many customers reported following the airline's social media accounts, primarily to stay informed about promotions and new travel opportunities: "to look for promotions and new destinations" (P42). This highlights social media as a valuable channel for customer engagement, allowing the airline to disseminate timely information, build brand affinity, and address customer information needs in an accessible format.

Information Weaknesses.

Website and Mobile App: Despite high usage, many customers reported usability issues with the airline's digital platforms. One common complaint involved login reliability: "*login doesn't always work*" (P7). Inconsistent push notifications were also noted, particularly regarding flight updates: "*sometimes it sends me notifications on*

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everything, and sometimes I don't get any notifications regarding my flights" (P36). Additionally, the inability to save payment information was a point of frustration. Addressing these shortcomings by improving functionality and reliability would significantly enhance the user experience and better fulfill customers' real-time information needs.

Prices: Numerous customers expressed concern over the high cost of tickets, with many local respondents perceiving a disparity in pricing. One participant remarked, "*prices are too high and takes advantage of locals*" (P15). These perceptions are often linked to a sense that loyalty and nationality result in unfair treatment, leading to feelings of being exploited. This sentiment highlights a perceived lack of transparency and fairness in pricing. Research suggests that loyal customers tend to value relational over transactional benefits (Wang, 2014). To strengthen customer relationships, the airline must better understand these concerns and address the underlying expectations of its LP members.

Miles: Many customers reported difficulty in understanding and using the airline's LP miles. One participant noted, "*using the miles is very difficult*" (P11), while another urged the airline to "*simplify the too much complexity*" (P17). A key frustration involved the lack of transparency in redeeming miles for flights, as customers must check availability manually on a day-by-day basis. These usability issues hinder the effectiveness of the LP system. Enhancing the interface to make mile redemption more intuitive and accessible would better support customer needs and foster long-term loyalty.

Misleading Promotions: While customers expressed strong interest in the airline's promotions and special offers, many reported confusion and frustration regarding the clarity of promotional terms. One participant commented, "*The promotions are sometimes deceptive, and they take advantage in some cases*" (P41). Ambiguous rules and difficult-to-understand conditions have led to negative perceptions and diminished trust. These findings suggest that key promotional information is not being communicated effectively. To maintain credibility and customer satisfaction, the airline must prioritize transparency and clarity in how promotional details are conveyed.

RESULTS OF STUDY 3: TRAVEL AGENT INTERVIEW

The third study involved semi-structured interviews with travel agents from various agencies, aimed at understanding why some customers prefer to book through agents rather than directly with the airline. Interviews were conducted in person at the agents' workplaces, using a one-on-one format. Following IRB-approved consent procedures, participants first responded to general questions about their roles and experiences with the airline, followed by a series of open-ended questions to explore their perspectives in greater depth.

Participants

A total of nine travel agents participated in the study, including six male and three female respondents. Their professional experience ranged from 3 months to 10 years. All interviews were recorded and transcribed for analysis. The resulting open codes, reflecting key themes from the interviews, are summarized in Table 5.

Open Code	Description
Experience	Travel agents have a lot of travel knowledge that benefits their customers.
Recommendations	Travel agents often recommend destinations, hotels, and other travel advice to customers.
Trust	Many travel agents work with customers on a long-term basis. They have customers who do not trust online payment.
Group and corporate trips	Booking for groups and corporate trips can be a hassle. Travel agents ease this process for their customers.
Online travel agents	Online travel agents are quickly taking over the role of travel agents.
Independent travelers	Online resources are making travelers more independent and ease the process of looking up travel information.
Fast changing technology	Travel agents need to adapt to changing technologies, compete with online travel agents, and the availability of online resources.

Table 5. Travel Agents Interview Open Codes

Information Strengths.

Experience: Travel agents reported that many customers choose to book through them because of their expertise in navigating travel regulations and procedures. As one agent explained, "*a lot of customers don't understand how to manage things like rescheduling flights*" (P2). Agents frequently assist with tasks such as processing refunds, rebooking flights, and handling complex travel arrangements. Their in-depth industry knowledge is a key information strength that enables them to support customers who may struggle with these processes on their own.

Recommendations: Travel agents play a key role in helping customers plan personalized travel experiences by offering tailored recommendations on destinations, promotions, travel timing, and accommodation options. One

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agent noted, "*we do a lot of recommendations. We can help find the low seasons so travelers can avoid crowds*" (P6). Agents believe that many customers rely on their guidance to make informed choices that align with individual preferences. Their close, often long-term relationships with clients provide valuable insights into customer needs, enabling more targeted and effective travel planning.

Trust: Several travel agents reported that customers choose to book through them due to concerns about online payment security. As one agent explained, "*people are afraid to use their cards online*" (P4). This mistrust of digital platforms, particularly when it comes to sharing financial information, leads some customers to seek the perceived safety and personal assurance of working with a trusted agent. The confidence customers place in travel agents enhances their ability to meet client needs and reinforces the value of personalized, secure service.

Group and Corporate Trips: Travel agents frequently facilitate bookings for organizational and group travel, particularly for corporate clients. One agent noted, "*Mostly we book for groups for organization trips*" (P3). Agents explained that customers often prefer to use their services for large group arrangements due to the added convenience and coordination support they provide. Managing logistics for multiple travelers is perceived as more efficient and less stressful when handled by experienced agents.

Information Weaknesses.

Online Travel Agents: Travel agents acknowledged that their roles are increasingly threatened by the rise of online travel platforms. As one participant noted, "*it's very hard. Especially with sites like Expedia. A lot of people look for prices on their own and maybe find better prices online*" (P7). These digital platforms offer customers direct access to competitive pricing and booking options, often diminishing the perceived value of traditional agent services. The convenience and autonomy provided by online travel agents have rapidly displaced many functions previously handled by in-person agents, presenting a significant challenge to their continued relevance.

Independent Travelers: With widespread access to online resources, travelers are increasingly planning their own trips without the need for intermediaries. As one agent observed, "*customers know what they want. A lot of people look online, and plan trips themselves*" (P2). The internet has reduced the perceived complexity of travel planning, leading to decreased reliance on traditional travel agents. Additionally, some agents noted that their offerings can be limited by the specific products or services they are authorized to sell: "*there are so many airlines now... it's easy for customers to find a lot of choices online*" (P9). As travelers become more informed and resourceful, the flexibility and options available through online tools often surpass what agents can provide, making agencies appear increasingly constrained in shaping custom itineraries.

Fast-Changing Technology: Rapid advancements in travel technology have placed increased pressure on travel agents to remain agile and well-informed. As one agent explained, "*we get the promotions from the airlines... sometimes we don't get the offers very quickly*" (P3). In an environment where customers can instantly access deals online, agents must work harder to stay current with real-time information and competitive pricing. This requires robust systems and up-to-date databases to ensure they can deliver timely, accurate information and remain viable in a digital-first marketplace.

DISCUSSION

The findings from the three studies offer critical insights into strengthening the airline's Customer Engagement Management (CEM) strategy and reveal key areas where information science and human-computer interaction (HCI) research can make meaningful contributions. By systematically investigating the information needs of internal CEM staff, customers, and travel agents, the study presents a multifaceted view of how engagement processes operate across organizational and user boundaries. This stakeholder-driven approach enables a more nuanced understanding of the airline's CEM-related knowledge management challenges and opportunities, positioning information flow and usability as central levers for improving engagement outcomes.

This study examines the alignment and misalignment of information needs across three key stakeholder groups to generate actionable recommendations for enhancing the airline's CEM strategy. Identifying information weaknesses from both the organizational and customer perspectives provides a foundation for targeting specific areas of improvement. In contrast, insights from the third study emphasize the informational strengths of travel agents, which often compensate for gaps in the airline's own engagement practices. These strengths illuminate why some customers prefer intermediaries, revealing critical shortcomings in the airline's direct-to-customer information delivery. Understanding these dynamics offers a valuable lens through which to reconfigure CEM strategies for greater responsiveness, trust, and usability.

An important cross-cutting insight emerging from the second study is the influence of cultural and national identity on customer engagement, particularly within the context of loyalty. Many respondents expressed a sense of national pride and affiliation with the airline, which shaped their expectations for service quality, pricing fairness, and communication transparency. This alignment between customer identity and brand identity highlights a powerful but

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underutilized lever for designing culturally resonant engagement strategies. For information organizations, the implication is clear: information needs are not merely transactional but are shaped by broader socio-cultural affiliations. Designing CEM systems without acknowledging these dimensions risks misalignment with user expectations, especially in environments where brand loyalty is entangled with national sentiment. Information organizations operating in multicultural or nationalized contexts should account for how cultural identity shapes trust, communication preferences, and expectations for information clarity, ensuring that digital platforms and outreach strategies are tailored to resonate with culturally diverse audiences.

In response to RQ01, the first study highlights several critical information needs within the airline's internal operations. Effective knowledge management requires cross-departmental collaboration to ensure that customer experience is recognized as an organization-wide responsibility, not one confined to the CEM team alone. Elevating the role of e-CEM and social-CEM initiatives is essential to meeting evolving customer expectations in digital and social contexts. Furthermore, persistent data quality issues—particularly in terms of accuracy and consistency—must be addressed. Improving data collection and validation practices will be vital to supporting reliable decision-making and long-term CEM effectiveness.

RQ02 is addressed through the second study, which identifies key customer information needs that directly impact satisfaction and engagement. Participants consistently emphasized the need for clearer communication and more robust digital resources. Concerns around misleading promotional content and the complexity of using LP miles revealed gaps in information clarity and system usability. To address these issues, the airline must prioritize transparency in promotional messaging and redesign loyalty interfaces for greater simplicity. Additionally, enhancing the personalization and reliability of the website and mobile app, particularly login functionality will be critical for meeting customer expectations and supporting seamless self-service experiences.

The final study addresses RQ03 by uncovering the factors that lead customers to prefer working with travel agents over engaging directly with the airline. While the rise of online travel platforms has made booking more accessible, travel agents remain relevant by offering expert guidance, especially in navigating complex travel rules and procedures. Many customers continue to rely on agents for personalized support, citing difficulties in understanding rescheduling policies, promotions, and LP. This highlights a critical gap in the airline's ability to communicate and deliver information effectively. By examining the specific informational roles fulfilled by travel agents, the airline can identify strategic opportunities to enhance its CEM systems, particularly in terms of clarity, trust, and user support, to better meet customer needs.

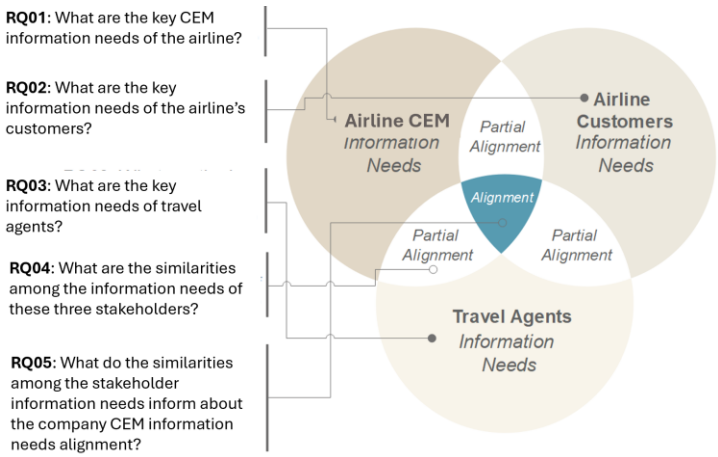

Figure 1. Overview of CEM Information Needs Findings

To address RQ04, the analysis centers on identifying areas of convergence among the information needs of the three stakeholder groups. Figure 1 visually maps these intersections, highlighting both shared priorities and divergent expectations. The study first examines partial alignments—such as overlapping concerns about usability, trust, and information clarity—across stakeholder perspectives. In addressing RQ05, the focus shifts to evaluating the overall alignment of these needs. This synthesis provides deeper insight into how a more unified understanding of stakeholder requirements can inform a more cohesive and responsive CEM strategy, ultimately strengthening the effectiveness of the airline's engagement processes.

Partial Alignment 1: CEM Team and Customers

Based on the analysis of these two studies, the CEM team should prioritize improvements in two key areas of their strategy to more effectively meet customer information needs:

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E-CEM: Both the CEM team and customers acknowledge the need to enhance the airline's digital platforms. Although the website and mobile application are widely used, customers frequently report usability issues, limited personalization, and overall frustration with the interface. Improving the online experience would empower the CEM team to more effectively engage high-value customers, particularly through a more intuitive and accessible LP interface. Streamlining the miles redemption process would incentivize continued participation and tier retention. A well-designed digital platform could serve as a robust communication channel for delivering personalized promotions and collecting feedback, strengthening customer relationships, and fostering long-term loyalty.

Social-CEM: Social media offers a high-impact avenue for deepening customer engagement and enhancing real-time interactions. Given the airline's substantial social media following, these platforms present a valuable opportunity to diversify communication channels and reduce overreliance on email, a concern raised by the CEM team. Leveraging social media can help the airline address customer satisfaction issues promptly, deliver targeted updates, and foster a sense of accessibility and responsiveness. Adopting a personable and interactive presence, the airline can strengthen customer relationships and position itself as a customer-centric and digitally agile brand.

Partial Alignment 2: CEM Team and Travel Agents

Slow Work Cultures: Insights from the CEM team and travel agents underscore the urgent need for the airline to adapt more rapidly to technological change. In a highly competitive and fast-moving industry, slow and bureaucratic processes pose significant risks to customer engagement effectiveness. The airline must prioritize cultural transformation within its CEM operations, shifting from a traditional, hierarchical approach to one that supports faster decision-making, cross-functional collaboration, and real-time use of customer information. Accelerating workflows will be essential for the CEM team to leverage data and technologies to meet customer expectations.

Partial Alignment 3: Customers and Travel Agents

Lack of Experience: The final partial alignment emerges between customers and travel agents, revealing a shared concern around user difficulty with the airline's digital platforms. Many customers struggle to navigate the website and app, often lacking the confidence or knowledge to manage tasks such as booking, rescheduling, or redeeming loyalty points. Travel agents bridge this gap by leveraging their expertise to guide customers through these processes. To address this disconnect, the airline should focus on simplifying travel-related workflows and enhancing its e-CEM infrastructure. Incorporating personalized technologies, such as AI-driven chatbots, can significantly improve usability, offering intuitive, real-time support and reducing reliance on intermediaries.

Overall Alignment:

Communication: The most significant insight from the overall alignment across all three stakeholder groups is the shared need for improved communication. Across the board, stakeholders reported that essential information—whether promotional content, LP rules, or travel policies—is often overly complex, inconsistently delivered, or communicated through suboptimal channels. While the airline places emphasis on personalization, customers express frustration not with the content of messages but with how they are presented, often finding them unclear or difficult to interpret. This lack of clarity also drives many customers to rely on travel agents, who serve as intermediaries to simplify confusing travel requirements. To address this foundational issue, the airline must prioritize the simplification and accessibility of travel- and service-related information, ensuring that communication is clear, timely, and aligned with customer expectations.

Implications for CEM Information needs

This study presents several implications for the airline's CEM strategy, with broader relevance to CEM practices in other organizations. First, the CEM team should prioritize enhancing the online customer experience by advancing its e-CEM capabilities. Integrating artificial intelligence into CEM systems can significantly improve the efficiency and scalability of customer data analysis, enabling more responsive and personalized engagement (Chatterjee et al., 2019; Monod et al., 2023; Libai et al., 2020). Additionally, incorporating social-CEM strategies will allow the airline to leverage the relational power of social media, fostering stronger customer interaction and community-building (Malthouse et al., 2013). Finally, sustained improvements in communication and trust are essential for cultivating long-term customer loyalty. Building transparent, responsive communication channels will address lingering trust gaps and support meaningful customer relationships (Chen & Popovich, 2003; Khan et al., 2022).

CONCLUSION AND FUTURE RESEARCH

This study investigates CEM information needs within the airline industry through qualitative analysis of three key stakeholder groups: internal CEM staff, customers, and external travel agents. By examining both partial and overall alignments among these groups, the research provides targeted, actionable recommendations to strengthen the airline's CEM strategy. Future research should explore the airline's complete information journey to develop a more holistic understanding of its CEM-related challenges. A deeper investigation into the roles of e-CEM and social-CEM in supporting information design and delivery holds promise for advancing both theory and practice.

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AUTHOR ATTRIBUTION

First Author: data curation, formal analysis, investigation, methodology, visualization, and writing – original draft. Second Author: conceptualization, project administration, resources, supervision, validation, visualization, writing – original draft, and writing – review and editing.

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