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The Impact of Omnichannel Properties on Customer Engagement and Loyalty in Banking: An SOR Perspective

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Abstract

Objective: This study will thoroughly explore the effects of the quality of integration, perceived fluidity, and the reliability of assurances on cognitive and emotional engagement and customer loyalty within the banking sector. The investigation will be conducted in an omnichannel context using the stimulus-organism-response (SOR) framework.
Design/Methods/Approach: This research utilized an online survey distributed via personal messages to collect data from bank customers who actively use omnichannel banking services. Employing a non-probabilistic purposive sampling technique, the study ensured respondents met specific criteria, resulting in 275 valid responses, which were analyzed using Smart PLS-SEM 4.0 to verify the proposed hypotheses.
Findings: This study found that the quality of integration and perceived fluidity significantly affect cognitive and emotional customer engagement. Interestingly, the reliability of assurances impacts only cognitive engagement rather than emotional engagement. These two forms of engagement, cognitive and emotional, substantially enhance brand loyalty in the omnichannel banking context.
Originality/Value: This study contributes significantly to the existing literature by providing a holistic perspective on customer engagement in the banking sector during the omnichannel era. Unlike previous studies, this research integrates three key dimensions within omnichannel banking: the quality of integration, perceived fluidity, and the reliability of assurances. Using the SOR framework, it explores their impact on cognitive and emotional engagement and customer loyalty. The findings not only deepen the understanding of effective service channel management to enhance customer engagement and loyalty but also offer practical guidance for the banking industry in designing more effective omnichannel strategies.
Practical/Policy implications: This study's findings provide valuable insights for banks in the omnichannel banking sector. The research indicates that banks must optimize integration quality across service channels to enhance customer engagement and loyalty. Banks should adopt technologies that enable real-time data synchronization and train staff to ensure service consistency across all channels. Additionally, banks should develop effective loyalty programs to maintain cognitive and emotional customer engagement and actively collect feedback to improve customer experience continuously.

Keywords: Assurance quality, Customer engagement, Integration quality, Omnichannel banking integration; Perceived fluency

JEL Classification: M3, M31

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1. Introduction

In a digital age characterized by intensified competition, the banking sector faces significant and often unforeseen challenges (Murinde et al., 2022). Market changes and consumer behavior occur quickly, making brand differentiation increasingly difficult due to technological advances (Uribe-Linares et al., 2023). Consumers are now more empowered with access to extensive information and diverse purchasing options across multiple service platforms. This situation forces the banking sector to adopt more innovative marketing strategies to create a competitive advantage, especially given the financial products' abstract and complex nature (Naimi-Sadigh et al., 2022). Creating engaging experiences and maintaining customer loyalty is increasingly challenging (Mainardes et al., 2020). Customer engagement is also critical in developing stronger consumer relationships, which can increase customer loyalty and value (Barari et al., 2021). Evolving technology allows consumers to interact with banks through multiple channels, including physical branches, digital services, mobile apps, and social media, blurring the lines between these channels (Carreri et al., 2023). The demand for seamless channel integration has become crucial in the banking sector. To adapt to this trend, the banking sector has evolved from a multichannel approach to adopting a cross-channel model and is now progressing toward an omnichannel strategy. This integrated method coordinates multiple touchpoints to provide customers with a smooth and cohesive experience (Buckley & Feldman, 2024). This approach not only emphasizes convenient services but also enhances customer engagement (Salem & Alanadoly, 2024), thereby boosting customer loyalty and overall satisfaction.

In the banking sector, omnichannel strategy has emerged as an approach that provides significant added value to consumers, particularly by enhancing customer experience and engagement (Mainardes et al., 2020). Modern banking customers utilize various transaction channels, such as ATMs, physical branches, mobile applications, call centers, and websites, rather than relying on a single option (Mainardes et al., 2020). These omnichannel services enable the simultaneous use of multiple channels, thereby delivering an integrated and comprehensive experience (Gerea et al., 2021). Consequently, the hybrid distribution system of omnichannel services offers several opportunities, including expanding market reach, boosting sales volume, lowering operational costs, and addressing diverse customer needs (Neslin, 2022). As pioneers in applying omnichannel retailing for financial transactions, banks are modernizing how financial organizations interact with consumers through various service channels (Uribe-Linares et al., 2023). This multifaceted approach is expected to produce consistent interactions and meet evolving customer demands (Salem & Alanadoly, 2024). Therefore, an omnichannel strategy not only enhances operational efficiency but also plays a crucial role in fostering robust customer engagement.

Creating a cohesive and engaging customer experience across multiple channels is essential for the growth of an omnichannel business. However, achieving this remains a significant challenge for banking service providers seeking to improve customer engagement. A study by Qualtrics (2023) revealed that 62% of participants believe brands should emphasize nurturing customer relationships and enhancing their capacity to engage customers through multiple channels. Meanwhile, only 7% are content with the current service experience (Rana, 2024). Furthermore, research by Sopadjieva et al. (2017) shows that omnichannel customers spend 10% more online and 4% more in-store than single-channel customers. Additionally, service providers that achieve high levels of customer engagement manage to retain approximately 89% of their clientele, unlike those with lower customer engagement rates, who see only 33% remaining loyal customers (Rana, 2024). Customer engagement, defined by Hollebeek (2011), refers to the degree of interaction and connection customers have with a brand, which enhances customer satisfaction and loyalty (Aljuhmani et al., 2023). However, research on omnichannel customer engagement needs to look into the distinction between cognitive and affective engagement (Kumar et al., 2024; Tran Xuan et al., 2023). Cognitive engagement involves the mental effort customers invest in processing information and making decisions, while affective engagement is driven by emotional attachment to the brand (Bozkurt et al., 2022). Cognitive engagement is critical in customers' decision-making processes in banking, especially when evaluating complex financial products and services. On the other hand, affective engagement strengthens emotional loyalty by fostering positive relationships and personalized interactions, leading to deeper emotional connections with the brand (Glavee-Geo et al., 2020). The interplay between these two dimensions is essential because cognitive engagement alone may only sustain long-term customer loyalty with the emotional bond established through affective engagement. For instance, a customer may cognitively recognize the benefits of a bank's products, but without an emotional attachment, they may switch to another bank offering better terms. Therefore, understanding how cognitive and affective engagement interact within the omnichannel environment is crucial for service providers aiming to increase customer retention and loyalty (Gao & Huang, 2021a). With a holistic understanding of both dimensions, our grasp of how customer engagement influences behavior and loyalty becomes complete (Aljuhmani et al., 2023). Thus, further empirical research is needed to explore how these dimensions interact to shape customer outcomes in omnichannel banking, enabling more effective strategies to boost loyalty.

In the context of omnichannel retailing, previous studies have confirmed that the effectiveness of channel integration and the fluidity perceived by customers are crucial factors for the success of omnichannel enterprises (Xuan et al., 2023). The quality of channel integration is consistently identified as a critical attribute for omnichannel success across sectors such as home furnishings (Prassida & Hsu, 2022), electronics (Asare et al., 2020), and fresh food (Chen et al., 2022). In the banking sector, the seamless integration of various service channels plays a vital role in increasing positive customer engagement, which is critical in managing customer interactions across multiple channels and remains a central element in omnichannel retailing (Mainardes et al., 2020). Li and Gong (2024) point out that the fluidity

perceived from integration is also a key driver of omnichannel customer engagement, reflecting a natural and continuous transition when switching between channels. In the online environment, this fluidity significantly influences customer affection, cognition, and behavior (Qin et al., 2021). Perceived fluidity refers to the "continuity of tasks and transactions when switching platforms" when using multiple service channels (Shen et al., 2018). Although this aspect has been recognized as necessary in several studies, a focus on perceived fluidity from the quality of integration and its influence on customer engagement in the omnichannel banking context has yet to be deeply explored in the literature. Hence, this study aims to fill that gap by providing deeper insights into how perceived fluidity affects customer engagement in the banking sector.

Beyond integration quality and perceived fluidity, the reliability of assurances is critical in omnichannel services. Assurances concerning safety, security, and privacy have been a central concern in financial services (Alzaydi, 2024). Establishing and maintaining customer trust is essential, as a lack of trust can significantly limit engagement across online and offline channels (Albarq, 2023). While omnichannel services offer added convenience, perceived risks, particularly regarding privacy, may cause customers to hesitate or even abandon transactions, significantly when personal data are misused (Alzaydi, 2024). The banking sector, in particular, requires the highest levels of safety, security, and privacy (Almaiah et al., 2023). In online contexts, Glavee-Geo (2020) found that perceived risks influence cognitive engagement but negatively impact emotional engagement in mobile money usage in Ghana. Shankar (2021) showed that interactivity in mobile banking apps enhances consumer engagement, mainly when security concerns are minimal. Kamdjoug et al. (2022) highlighted that personal data protection and cost savings are crucial factors influencing trust and the use of e-banking in developing countries like Cameroon. Conversely, in offline environments, Agyei et al. (2020) discovered that trust in service providers increases engagement and loyalty in Ghana's insurance industry. Kosiba et al. (2020) identified economic trust and trust in service providers as key factors driving the banking sector's emotional, cognitive, and behavioral engagement. Moliner-Tena et al. (2019) emphasized the importance of customer engagement in fostering non-transactional loyalty within banking. However, most of these studies are limited to either online or offline environments, neglecting the omnichannel context, where interactions between both could provide deeper insights. Therefore, further research is needed to explore the reliability of assurances in omnichannel banking, investigating differences between these environments and how assurances can be optimized to enhance customer engagement and loyalty (Xuan et al., 2023).

This study aims to fill the gap in the literature related to customer engagement in the banking sector in an omnichannel context by providing a holistic view that includes two dimensions of customer engagement, namely cognitive and emotional. This research comprehensively examines the impact of quality of integration, perceived fluidity, and the reliability of assurances on cognitive and emotional engagement and customer loyalty in the banking sector. Adopting the stimulus-organism-response (SOR) model by Mehrabian and Russell (1974), the research identifies omnichannel attributes such as integration quality, perceived fluidity, and assurance reliability as stimuli (S). These stimuli impact the organism (O), reflected in cognitive and emotional customer engagement, ultimately leading to a response (R) manifested as customer loyalty. The SOR framework proved relevant in various research contexts, such as impulsive buying (Andika et al., 2023), organic food purchase intention (Laos-Espinoza et al., 2024), and organizational behavior (Lingling & Ye, 2023), providing a robust theoretical foundation for understanding the dynamics between external stimuli (quality of integration, perceived fluidity, and the reliability of assurances), internal processes (cognitive and emotional), and behavioral responses (customer loyalty). This research not only provides deep insights into the mechanisms underlying customer engagement in omnichannel banking but also offers practical implications for the banking industry in designing effective omnichannel strategies to increase customer engagement and loyalty.

The structure of this paper is arranged as follows: first, it summarizes the existing literature on omnichannel retailing in the banking sector and customer engagement; second, it develops the theoretical basis for the hypotheses and proposes a research framework; third, it presents the research methodology and analytical results in detail; and, finally, it discusses the research findings with emphasis on practical implications and identifies research limitations that need to be addressed for future research.

2. Literature Review and Hypotheses Development

2.1 Literature Review

2.1.1 Omnichannel Banking and Customer-Brand Engagement

The rise of digital channels and innovative interactive methods has expanded opportunities for companies to engage with their customers. In the past, retailers were confined to a single channel—the physical store—which significantly limited customer interaction (Hänninen et al., 2021). However, the evolution of multichannel strategies has allowed businesses to reach a broader audience (Timoumi et al., 2022). Integrating traditional retail with online platforms marks progress, though still insufficiently sophisticated. This has led to the emergence of the omnichannel approach, which seamlessly integrates multiple touchpoints, enabling customers to interact with any channel at various stages of their purchasing journey (Thaichon et al., 2024). By harnessing data from across the customer journey, omnichannel strategies significantly enhance personalization capabilities. As a result, this approach is increasingly regarded as a holistic solution that unifies all channels to deliver a consistent and cohesive customer experience (Cocco & Demoulin, 2022).

In the banking industry, the omnichannel model exemplifies the seamless integration of physical and digital channels, providing customers with flexible access to financial services in terms of time and location (Mainardes et al., 2020; Tseng, 2024). Physical branches allow face-to-face interaction with bank staff. At the same time, digital channels offer remote access to services via websites, mobile apps, and ATMs, eliminating the need for direct staff engagement (Kaur et al., 2021). This blend of physical and digital channels enhances the overall customer experience by improving convenience and accessibility (Hamouda, 2019). Consequently, omnichannel systems allow customers to initiate transactions on one platform and complete them on another at their convenience.

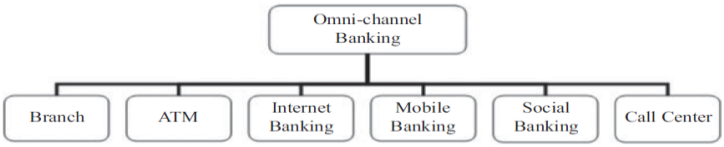

Figure 1. Critical Elements of Omnichannel Banking (Hamouda, 2019)

The success of omnichannel banking is intricately linked to customer engagement, particularly in the cognitive and emotional dimensions. Aljuhmani et al. (2023) identify these two dimensions as crucial—cognitive engagement refers to the mental connection between the customer and the brand, while emotional engagement reflects the positive feelings customers experience during brand interactions (Hollebeek, 2011). Both play a vital role in fostering customer loyalty and ensuring consistent engagement with the brand. These dimensions stem from a psychological state that develops through customers' interactive and co-creative experiences, especially in service-related interactions (Brodie et al., 2011). Engagement builds emotional and cognitive bonds with the brand, which leads to increased loyalty and ongoing interaction (Bozkurt et al., 2022; France et al., 2016). Although some research advocates for a broader, multi-dimensional approach that integrates psychological and behavioral elements (Ahn & Back, 2018; Hollebeek, 2011; Hollebeek et al., 2014), the cognitive and emotional dimensions, as emphasized by Aljuhmani et al. (2023), are particularly critical for understanding customer engagement in the omnichannel context. Focusing on these dimensions allows a more precise analysis of how customers process information and emotionally respond within omnichannel banking systems (Scarano et al., 2023).

As the variety of interaction channels grows in omnichannel retail, customer engagement becomes increasingly significant (Lemon & Verhoef, 2016). However, as Khan et al. (2016) point out, the scope of omnichannel retail still needs to be developed, particularly within the banking industry. More attention should be given to researching the influence of critical elements in omnichannel retail, such as integration quality and perceived seamlessness, on customer engagement. Furthermore, the impact of reliability and assurance in omnichannel systems on engagement still needs to be explored and deserves further investigation (Tran Xuan et al., 2023).

2.1.2 The SOR (Stimulus–Organism–Response) Theory

In marketing literature, the SOR (stimulus-organism-response) model, introduced by Mehrabian and Russell (1974), is extensively recognized as a foundational framework for examining the impact of environmental stimuli on individual behavior. This model delineates that the stimulus (S) comprises various elements that shape consumer perceptions, while the organism (O) represents the internal processes influenced by these stimuli. These external factors are then interpreted into meaningful information, culminating in a response that manifests as either approach or avoidance behavior (R). Although this theory originated in psychology, its application has broadened to encompass understanding the influence of environmental cues on consumer behavior in diverse contexts (Jiang & Lyu, 2024).

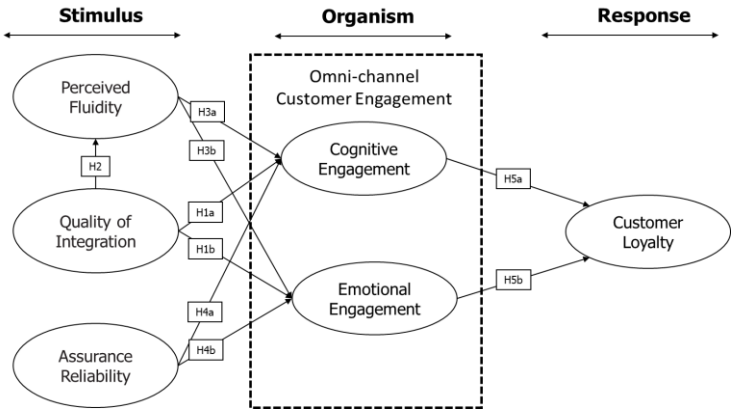

Figure 2. The conceptual model of this research

Research by Eroglu et al. (2001) laid the foundation for applying the SOR theory in online shopping by explaining the complex relationships between consumer actions in digital environments. Their study showed that changes in a

virtual store's atmosphere (S) affect various aspects of consumers' internal states (O), which in turn affect their shopping outcomes (R). In multichannel retailing, atmospheric cues are considered stimuli that influence consumers' emotional and cognitive states, affecting behaviors such as the desire to browse or purchase intention (Xin et al., 2022; Yen, 2023). This framework has also been adopted in various studies examining the omnichannel perspective (Natarajan et al., 2023; Paz & Delgado, 2020; Pereira et al., 2023).

In omnichannel banking, encompassing digital and physical interactions, banks function as platforms to introduce their financial products, deliver omnichannel services, and engage with customers (Kumar et al., 2024). This study identifies the quality of integration, perceived fluidity, and reliability of assurances as critical stimuli (S) in contemporary banking that impact the internal dispositions of customers. These dispositions, which include cognitive and affective states, act as intermediaries between the stimuli and behavioral responses. Consequently, this research aims to enhance the existing literature on the SOR theory by emphasizing cognitive and emotional engagement (O) as organismic factors influencing external behaviors. Brand loyalty (R) emerges as an individual response driven by these forms of engagement. The conceptual framework is depicted in Figure 2.

2.2 Hypotheses Development

2.2.1 Quality of Integration, Cognitive Engagement, and Emotional Engagement

Integrating multiple channels within an organization can create a significant competitive advantage by establishing a more robust strategic position over competitors. Sousa and Voss (2006) initially introduced the concept of "channel quality of integration" to evaluate the quality of interactions between channels. To define channel quality of integration, Shen et al. (2018) describe it as the ability to offer customers a consistent and seamless service experience across multiple platforms, such as physical stores, websites, and mobile applications. This quality ensures that customers can transition smoothly between channels without disruption. High-quality channel integration is essential for omnichannel strategies as it affects critical factors such as customer brand perception, satisfaction levels, purchasing intentions (Lazaris et al., 2021), perceived value (Natarajan & Veera Raghavan, 2024a), risk perception, and willingness to share information (Mukhopadhyay et al., 2024). Sousa dan Voss (2006) identified two primary dimensions of channel integration quality: service configuration and interaction quality. The former encompasses the range of channel choices and the transparency of channel services, while the latter focuses on the consistency of content and processes across channels (Hossain et al., 2019). Although these four sub-dimensions are conceptually distinct, they comprehensively assess channel integration quality.

Hollebeek (2011) suggests that offering flexibility in channel selection and ensuring consistent content across channels can significantly enhance customer engagement with omnichannel service providers in the context of channel integration quality and customer engagement. Gao and Huang (2021b) and Salem and Alanadoly (2024) argue that high-quality integration in omnichannel systems strengthens customers' cognitive and emotional engagement customer engagement. Hollebeek (2011) defines cognitive engagement as the degree to which customers are mentally involved in thinking processes and focused on the brand. This type of engagement is crucial for fostering more profound connections with a brand, especially when customers receive consistent and clear information across channels. High-quality integration enhances not only cognitive engagement but also emotional engagement, which refers to the positive emotions customers experience during brand interactions, often resulting from smooth and coordinated cross-channel experiences (Hollebeek, 2011). Lee et al. (2019) demonstrated that high integration quality ensures customers receive consistent information and seamless access across channels, enhancing their cognitive engagement (Quach et al., 2022). Customers who can begin a transaction in one channel and complete it in another, such as starting on a mobile app and finishing in a physical store, experience greater satisfaction and cognitive engagement (Hamouda, 2019). Moreover, the seamless and coordinated experience of high integration quality fosters positive emotions and emotional comfort for customers (Shen et al., 2018). Therefore, a consistent, high-quality integration experience across multiple channels can significantly drive cognitive and emotional customer engagement. Based on this reasoning, we propose the following two hypotheses:

H1. Higher quality of integration is correlated with increased cognitive (a) and emotional (b) customer engagement in omnichannel banking

2.2.2 Quality of Integration and Perceived Fluidity

Research by Shen et al. (2018) and Xuan et al. (2023) reveals that superior integration quality significantly enhances the perceived fluidity of omnichannel services. Perceived fluidity refers to the customer's experience of a seamless transition between different channels without disruptions or obstacles (Shen et al., 2018). Shi et al. (2020) emphasize that channel transparency and familiarity with existing channels improve the efficiency and accuracy of these transitions, facilitating seamless switching. Consistent processes ensure customers maintain similar evaluations after switching channels, contributing to a smooth and cohesive experience (Shen et al., 2018). A diverse array of channel options supports the continuity of service, information, and content post-transaction within an omnichannel framework (Zhang et al., 2018). Banerjee (2014) asserts that channel integration provides customers with various options tailored to their needs. In omnichannel retail, mobile devices that blur the lines between online and offline environments and

social media platforms that promote communication and interaction with customers increases the complexity of these interactions (Hu & Olivieri, 2020). As a result, this seamless interaction enhances customer engagement and their enjoyment of the shopping process across multiple channels (Gao & Huang, 2024). Based on these insights, the following hypothesis is proposed:

H2. High quality of integration correlates with increased perceived fluidity across omnichannel channels

2.2.3 Perceived Fluidity, Cognitive Engagement, and Emotional Engagement

Majrashi and Hamilton (2015) state that perceived fluidity is crucial in evaluating the effectiveness of cross-platform service integration in various situations. This concept is rooted in ease of information processing (Reber et al., 2004), translated as a smooth transition between platforms and task-switching (Shin, 2016). In omnichannel banking, Shen et al. (2018) describe fluidity as "the seamless transition experienced by customers when moving across different service channels." This study utilizes the framework from Majrashi and Hamilton (2015) to evaluate perceived fluidity, encompassing five key dimensions: task fluidity, content fluidity, interaction fluidity, cognitive fluidity, and emotional fluidity. Task fluidity pertains to the ease with which customers can perform tasks across various banking channels, while content Task fluidity refers to uninterrupted access to banking information. Interaction task fluidity assesses the coherence and connectivity between banking service channels, whereas cognitive task fluidity pertains to the consistency of customer awareness when switching channels. Emotional task fluidity captures customers' smooth emotional experience throughout their interactions with different channels (Xuan et al., 2023). Overall, channel task fluidity is an essential component of omnichannel banking strategy, where the level of task fluidity perceived by customers positively impacts the service experience, increases customer loyalty, and creates intangible barriers for competitors (Xuan et al., 2023).

The perceived fluidity of customer interactions is essential in omnichannel banking services, as a seamless and uninterrupted experience can significantly enhance customer satisfaction and engagement (Salem & Alanadoly, 2024). Based on cognitive theory, seamless movement between service channels makes it easier for customers to access information and complete transactions, strengthening their cognitive engagement (Gao et al., 2021). This cognitive engagement reflects customers' attention, thought, and mental effort in interacting with banking services. Fluency determines cognitive effort and online shopping decisions (Mosteller et al., 2014). In addition, perceived fluency is also related to emotional engagement, where positive and consistent experiences across service channels create feelings of satisfaction and emotional attachment to the bank (Garzaro et al., 2021). If banks can provide seamless service across multiple channels, this will result in significant affective commitment, providing an incentive to continue the relationship. According to Davis-Sramek et al. (2008), consumer engagement not only includes cost-benefit evaluation but is also strongly influenced by emotional factors associated with the relationship between the two parties. Based on the above, perceived seamlessness will positively impact customers' cognitive and emotional engagement in omnichannel banking services. When customers have a favorable view of the seamlessness of integration, they are likely to exhibit higher levels of engagement with the banking service provider. Therefore, we hypothesize that:

H3. The higher the perceived fluidity, the greater the cognitive (a) and emotional (b) engagement of customers in omnichannel banking

2.2.4 Assurance Reliability, Cognitive Engagement, and Emotional Engagement

Many researchers emphasize the importance of assurance reliability in financial services, noting that security and safety are top customer priorities (Li et al., 2021; Pakurár et al., 2019). Assurance reliability refers to customers' trust in a service provider's ability to consistently deliver secure services, protecting personal and financial information while ensuring effective recovery from service failures (Hossain et al., 2019). In a multichannel context, creating a sense of security across platforms is crucial for consumers who prioritize privacy and protecting their transaction records (Alzaydi, 2024). Customer data must be seamlessly synchronized across websites, mobile apps, ATMs, and branch offices, with security measures addressing concerns related to data management in hybrid systems (Gao & Huang, 2021). Critical components of assurance reliability include privacy, security, and ease of service recovery. Privacy entails safeguarding customer data, while online security can be enhanced through layered systems and physical security through surveillance and personnel (Hossain et al., 2020). Ease of service recovery reflects a bank's ability to efficiently support and respond to customer feedback during transactions across channels (Hossain et al., 2019).

The reliability of assurance in omnichannel banking plays a critical role in shaping customers' cognitive and emotional engagement (Fan et al., 2022). Assurances that ensure the protection and appropriate use of personal information increase consumer trust in omnichannel banking systems and significantly impact consumer engagement (Tran Xuan et al., 2023). According to Sathar et al. (2023), good security features can influence perceived usefulness and enjoyment in customer interactions. Regarding cognitive engagement, high assurance quality strengthens customers' confidence in the reliability and consistency of banking services, increasing their focus and attention to interactions with the bank (Supriyanto et al., 2021). For example, customers who use digital banking services with advanced security systems and real-time transaction notifications tend to feel more confident and focused on their financial management (Krishna et al., 2023). In addition, customers' emotional engagement is also significantly affected by the quality of

assurance; when customers feel that the bank cares about their security and satisfaction, they tend to feel a stronger emotional connection with the bank (Rajaobelina et al., 2021). For example, customers who receive prompt and friendly handling when problems occur with their accounts will feel more valued and have a stronger emotional bond with the bank (Shams et al., 2020). According to Rajalakshmi and Selvakumar (2024), when service providers interact well and increase customers' sense of security, this can improve customer delight. Based on this description, we hypothesize that:

H4. The higher the assurance reliability, the greater the cognitive (a) and emotional (b) engagement of customers in omnichannel banking

2.2.5 Cognitive Engagement, Emotional Engagement and Loyalty

Brand loyalty is "a customer's positive feelings toward a brand, desire to keep using the brand, and long-term commitment to it" (Pappu & Quester, 2016). Building loyal customers is a challenge in the banking industry, especially with technological advances that require banks to compete to provide a better customer experience (Mainardes et al., 2020). Currently, banks are trying to find various ways to create brand loyalty, as this can provide a long-term competitive advantage (Sarpong et al., 2023). A practical approach to fostering and advancing brand loyalty is elevating customer engagement quality (Tran Xuan et al., 2023). According to Rosado-Pinto (2020), consumer engagement is critical to improving overall business performance. Therefore, this research highlights the importance of examining loyalty in the context of customer engagement, as engaged consumers tend to exhibit higher levels of behavioral response and loyalty to brands (Leckie et al., 2021). However, it is essential to study further the relationship between consumer engagement and various brand-related outcome measures, such as brand loyalty in omnichannel banking (Tran Xuan et al., 2023).

The connection between customer engagement and brand loyalty has been extensively explored within the services marketing literature (Aljuhmani et al., 2023; Wongsansukcharoen, 2022). Companies encourage customers to engage with their services because these interactions can strengthen emotional bonds and enhance loyalty between brands and customers (Li et al., 2020). Customers with high levels of engagement typically demonstrate stronger brand loyalty due to persistent psychological connections and continuous interactive experiences (Gao & Huang, 2021). In the Luxury Fashion Industry, it was found that customers tend to become more loyal when they are deeply engaged with a brand (Lu et al., 2023). High engagement with e-commerce live-streaming services also positively influenced customer loyalty to brands (Ye et al., 2023). Aljuhmani (2023) identified customer loyalty as a consequence of cognitive and emotional engagement in the airline industry. In the context of restaurant chains, Huang and Chen (2022) showed that emotional and cognitive engagement are key drivers in shaping loyalty. Emotional engagement, described by elements such as attachment and love, triggers loyalty. Cognitive engagement is essential and characterized by trust, commitment, and satisfaction. Thus, we propose that brand loyalty in omnichannel banking can be influenced by both cognitive and emotional aspects of customer engagement, leading to the following hypothesis:

H5. The higher the cognitive (a) and emotional (b) engagement of customers across various omnichannel banking channels, the greater their loyalty

3. Method

3.1 Sampling Procedure and Data Gathering

To gather data, the researcher conducted an online survey targeting bank customers in Indonesia. The Indonesian banking sector offers an ideal environment for studying omnichannel adoption for several compelling reasons. First, the sector is undergoing rapid digital transformation, driven by the growth of financial technology (fintech), with the number of fintech players rising from 51 in 2011 to 334 in 2022 (Kumar et al., 2023). This growth has led 70% of major banks in Indonesia to adopt digital platforms, showcasing their readiness for further innovation (Narayan, 2019). Additionally, digital banking transactions in Indonesia have grown by 158% over the past five years (Ahdiat, 2023), reflecting the sector's increasing reliance on digital channels for customer interactions. Second, Indonesia's diverse demographic landscape presents a unique challenge, as urban areas account for 69.5% of internet usage compared to 30.5% in rural regions (APJII, 2024). This disparity necessitates inclusive and seamless services across all areas, making omnichannel strategies crucial for banks to serve diverse populations effectively. Finally, Indonesia's digital economy is projected to grow from $82 billion in 2023 to $110 billion by 2025, driving increased investments in banking technology (Joquino, 2024). The convergence of fintech expansion, demographic diversity, and a growing digital economy makes omnichannel adoption in Indonesia's banking sector not only timely but essential for maintaining a competitive edge and enhancing customer experience.

The questionnaire was distributed via a Google Form link shared through WhatsApp and Instagram between March and May 2024. The study focused on individuals who actively use omnichannel banking services. A non-probabilistic sampling method was employed because the target population could not be precisely identified. The sample was selected using purposive sampling with specific criteria: (1) respondents must engage with a particular bank through at least two channels, including online channels (mobile banking or call center) and physical channels (branches or ATMs); and (2) respondents must be at least 17 years old. A screening question was included at the beginning of the survey:

"Have you ever or currently use a bank that implements omnichannel services?" Respondents who answered 'No' were automatically eliminated from the study. This approach ensured that only eligible respondents were included in the research. The minimum sample size was determined following Chin's (1998) methodology, which emphasizes the importance of statistical power analysis. Using G*Power software, it was calculated that at least 207 participants were necessary to achieve a statistical power of 0.90. The reliability and validity of the questionnaire were initially tested through a pilot study with a small sample of 30 bank customers in Indonesia. After confirming no issues, the questionnaire was broadly disseminated, and responses were collected. Ultimately, 281 responses were received, but only 275 were suitable for further analysis due to outlier issues.

3.2 Measurement

The measurement constructs in this study were adapted from previous research and tailored to the context of this study to ensure validity and reliability. The first construct, omnichannel integration quality, includes four dimensions: Service Choice Through Multiple Channels (measured by three items), Service Information Openness, Content Consistency, and Process Consistency (each measured by two items), resulting in nine items to assess integration quality. This scale was adapted from Shen et al. (2018). The second construct, perceived fluidity, comprises five dimensions: Task Ability, Content Ability, Interaction Ability, Emotional Fluency, and Cognitive Ability, each evaluated by two items. The items for this scale were adapted from Shen et al. (2018) and Xuan et al. (2023). The third construct, assurance reliability, covers privacy, security, and service recovery accessibility, each with two items adapted from Hossain et al. (2020). The fourth construct, omnichannel customer engagement, was measured through cognitive (three items) and emotional (four items) dimensions, based on Tran Xuan et al. (2023). Finally, brand loyalty was assessed using five items adopted from Hamouda (2019) with five statements. The overall instrument used to measure each variable in this study is outlined in Appendix 1. All measurements utilized a four-point Likert scale, ranging from 1 (strongly disagree) to 4 (strongly agree). This study employed Smart PLS-SEM 4.0 as the primary analytical tool, utilizing structural equation modeling (SEM) techniques via the partial least squares (PLS) method to test the proposed hypotheses in the research model.

3.3 Preliminary Analysis

Based on the recommendations of previous studies on data collection from a single source through questionnaires (Harman, 1960), researchers must ensure that common method variance (CMV) is maintained for the validity of the research data. This study employed two methods to test for CMV: Harman's single-factor test and the variance inflation factor (VIF). Harman's single-factor test, conducted via principal component analysis, showed that the first unrotated factor accounted for less than 50% of the variance, indicating the absence of a single dominant factor. Researchers utilized the VIF from the collinearity test in partial least squares structural equation modeling to further examine CMV, ensuring VIF values were below 5 (Hair et al., 2019). The results from the collinearity test revealed VIF values ranging from 1.58 to 3.334. Based on these analyses, there is no common method bias in this dataset.

4. Result and Discussion

4.1 Profile of the Sample

Based on the demographic data in Table 1, most respondents were female (57%), with males comprising 43%. Most respondents were between 17 and 26 years old (60%). Regarding occupation, the largest group of respondents were students (52%), followed by lecturers/teachers (22%), private employees (14%), business people (8%), housewives (2%), and civil servants (2%). The data suggest a high level of education among respondents, with the majority being undergraduates (39%). Concerning transaction channels, ATMs and mobile banking apps were the most frequently used by 44% and 35% of respondents, respectively. Additionally, 28% of respondents regularly used omnichannel banking services. The three most commonly used omnichannel banks among respondents were BRI (46%), BCA (14%), and BSI and BNI, each used by 12% of respondents.

Table 1. Respondents' demographic characteristics (N=275)

Category	Subcategory	Frequency	%
Gender	Female	156	57%
	Male	119	43%
Age	17-26	164	59%
	27-42	82	30%
	42-58	24	9%
	>58	5	2%

Category	Subcategory	Frequency	%
Education Level	≤High School	80	29%
	Bachelor	106	39%
	Postgraduate	89	32%
Current occupation	Student	142	52%
	Lecturer/Teacher	61	22%
	Private employees	38	14%
	Self-employed	23	8%
	Housewife	6	2%
	Civil Servant	5	2%
Frequently used banking channels.	Mobile Banking	97	35%
	ATM	121	44%
	Internet Banking	32	12%
	Branch Office	18	6%
	Social Media Bank	7	3%
Frequency of using omnichannel bank services	Often	77	28%
	Rarely	71	26%
	Sometimes	71	26%
	First time	56	20%
Frequently used Omnichannel Bank	BRI (Bank Rakyat Indonesia)	126	46%
	BNI (Bank Negara Indonesia)	32	12%
	Bank Mandiri	31	11%
	BCA (Bank Central Asia)	38	14%
	BSI (Bank Syariah Indonesia)	32	12%
	Other	16	5%

4.2 Measurement Model Analysis

According to the guidelines proposed by Hair et al. (2019) regarding the PLS-SEM technique, the analysis procedure is carried out in two stages: first, the measurement model is evaluated based on item validity and reliability, and then the structural model is estimated to assess both the theoretical explanatory power of the model and the significance level of the hypothesized relationships. This study uses several indices, such as indicator loading, composite reliability (CR), convergent validity, and discriminant validity, to test construct reliability and validity (Hair et al., 2019).

Table 2 presents the results of evaluating construct reliability, convergent validity, and discriminant validity. All factor loadings for each construct exceeded the 0.6 thresholds Hair et al. (2019) suggested, with values ranging from 0.625 to 0.893. The composite reliability for all constructs also showed values above the 0.7 threshold, reflecting good internal consistency following Hair et al. (2019). Each construct's average variance extracted (AVE) value reached the minimum threshold of 0.5, indicating adequate convergent validity. In addition, Table 2 also shows that the heterotrait-monotrait ratio (HTMT) values of the correlations of all constructs are below 1.0, as Henseler et al. (2014) recommended, confirming the discriminant validity of the constructs.

Table 2. Evaluation results of measurement model

Construct	Item	Loading	CR	AVE	VIF	HTMT				
						RA	BL	CE	EE	IQ
Reliability Assurance (RA)	APR1	0.625	0.895	0.589	1.58					
	APR2	0.68			1.818					
	ARE1	0.811			2.556					
	ARE2	0.833			2.708					
	ASE1	0.798			2.073					
	ASE2	0.832			2.212					

Construct	Item	Loading	CR	AVE	VIF	HTMT				
						RA	BL	CE	EE	IQ
Brand Loyalty (BL)	BL1	0.867	0.932	0.733	2.69	0.685				
	BL2	0.856			2.851					
	BL3	0.887			3.334					
	BL4	0.856			2.581					
	BL5	0.815			2.19					
Cognitive Engagement (CE)	CE1	0.867	0.903	0.756	2.315	0.683	0.763			
	CE2	0.893			2.603					
	CE3	0.847			1.651					
Emotional Engagement (EE)	EE1	0.766	0.884	0.656	1.791	0.714	0.917	0.925		
	EE2	0.762			1.722					
	EE3	0.847			2.411					
	EE4	0.86			2.486					
Quality of Integration (QI)	IBR1	0.757	0.924	0.574	2.113	0.852	0.815	0.707	0.872	
	IBR2	0.716			2.143					
	IBR3	0.731			1.898					
	ICT1	0.761			2.177					
	ICT2	0.794			2.271					
	IPR1	0.802			2.525					
	IPR2	0.716			1.937					
	ITR1	0.78			2.312					
	ITR2	0.757			2.008					
Perceived Fluidity (PF)	EFE1	0.776	0.936	0.594	2.883	0.764	0.843	0.679	0.845	0.929
	EFE2	0.734			2.318					
	FCO1	0.759			1.791					
	FCO2	0.771			1.722					
	FCT1	0.824			2.315					
	FCT2	0.78			2.603					
	FIN1	0.728			1.651					
	FIN2	0.832			2.105					
	FTA1	0.738			2.206					
	FTA2	0.761			2.724					

4.3 Structural Model Analysis

After completing the measurement model evaluation, the next step is to evaluate the structural model to validate the conceptual model in PLS-SEM by emphasizing its predictive ability. We use metrics such as R square, Q square, SRMR, and PLS Predict per the guidelines from Hair et al. (2019). The analysis results show that BL, CE, EE, and PF variables significantly influence R Square values of 0.651, 0.438, 0.624, and 0.725, respectively. Based on the classification of Hair et al. (2019), the R Square values for BL, EE, and PF are categorized as moderate, while CE is classified as low. Q square values showed moderate predictivity for all variables, with scores of 0.473 for BL, 0.317 for CE, 0.4 for EE, and 0.424 for PF (Hair et al., 2019). The SRMR metric, essential in assessing the fit of PLS-SEM models, recorded a value of 0.08 in this study, indicating a good fit as it is below 0.1 (Henseler et al., 2014). Finally, comparing the predictive ability between PLS and linear regression (LM) models showed that PLS had lower RMSE and MAE values in most components than LM, indicating moderate predictive potential (Hair et al., 2019).

4.4 Hypotheses Testing Results

This section explains the interaction between constructs and provides insight into the relationship between variables. The hypothesis testing results presented in Table 3 were obtained through the bootstrapping method with 5000 resampling iterations following the recommendations of Hair et al. (2019). Using a one-way approach, the t-statistic threshold for this study was set at 1.65 with a 5% significance level. Of the nine hypotheses proposed, only one needed to be supported. The empirical findings show that two aspects of customer engagement positively impact customer

loyalty, with a more substantial influence on the emotional aspect (β5b = 0.692) than the cognitive element (β5a = 0.143). Both of these hypotheses, H5a and H5b, are supported. In addition, of the three properties in the context of omnichannel banking, two of them, namely the quality of integration (β1a = 0.224 and β1b = 0.407) and perceived fluidity (β3a = 0.229 and β3b = 0.371), significantly predict cognitive and emotional aspects, supporting H1a, H1b, H3a, and H3b. However, the reliability of assurances only significantly affected cognitive engagement and not emotional aspects (β4a = 0.268 and β4b = 0.053), supporting H4a but rejecting H4b. In particular, the findings also highlight the importance of quality of integration in enhancing customers' perceived fluidity of banking transactions, with the relationship between these two variables being significantly positive (β2 = 0.851), supporting H2**.**

Table 3. Hypothesis testing results

		Original	StDev	T statistics	P values	Results
H1a	QI -> CE	0.224	0.106	2.112	0.035	Supported
H1b	QI -> EE	0.407	0.085	4.812	0.000	Supported
H2	QI -> PF	0.851	0.017	48.81	0.000	Supported
H3a	PF -> CE	0.229	0.1	2.3	0.022	Supported
H3b	PF -> EE	0.371	0.086	4.294	0.000	Supported
H4a	RA -> CE	0.268	0.069	3.864	0.000	Supported
H4b	RA -> EE	0.053	0.068	0.78	0.435	Not Supported
H5a	CE -> BL	0.143	0.067	2.146	0.032	Supported
H5b	EE -> BL	0.692	0.062	11.23	0.000	Supported

4.5 Discussion

This study analyzes the influence of omnichannel properties (the quality of integration, perceived fluidity, and the reliability of assurances) on cognitive and emotional consumer engagement and its impact on customer loyalty in omnichannel banking. The findings indicate that the quality of integration, encompassing the range of options, transparency, and uniformity, significantly impacts both cognitive and emotional engagement with the brand. This underscores the critical role of delivering a seamless experience across various banking service channels to enhance customer engagement with the brand, consistent with earlier studies (Chen et al., 2023; Hamouda, 2019; Quach et al., 2022; Shen et al., 2018). Customers who can start a transaction in one channel and complete it in another, such as using a mobile app and completing it in a physical branch, tend to feel more satisfied and cognitively engaged (Hamouda, 2019). In addition, a smooth and coordinated experience of high integration quality can create positive feelings and emotional comfort for customers (Shen et al., 2018). Good integration ensures that all touchpoints with customers are harmoniously connected, strengthening customers' emotional connection with the brand (Chen et al., 2023). Cognitive engagement increases due to a more efficient and transparent service process, while a comfortable and pleasant experience strengthens emotional engagement. This research emphasizes the importance of quality integration in maximizing customer engagement across multiple service channels.

The findings also show that the quality of integration can crucially affect perceived fluidity. This confirms the importance of maintaining consistency and reliability between channels in an omnichannel system. High quality of integration allows the various channels in the system to function harmoniously, ensuring customers experience a seamless move from one channel to another without interruption or information mismatch. This study's results align with Shen et al. (2018) and Xuan et al. (2023), revealing that the quality of integration positively influences the perceived fluidity in omnichannel services. Shen et al. (2018) state that a uniform process ensures customers maintain consistent evaluations when switching channels, fostering a seamless experience and cognitive coherence. This continuity is further supported by an extensive range of channels, which promotes the ongoing delivery of services, information, and content across different platforms within an omnichannel environment (Zhang et al., 2018). Such a setup ultimately leads to high-quality integration that not only facilitates smooth transitions between channels but also significantly enhances customers' perception of the overall consistency and reliability of the omnichannel system.

Furthermore, the results of this study identified that perceived fluidity, which includes task, content, interaction, cognition, and feeling fluency, significantly affects customers' cognitive and emotional engagement with the brand. These findings align with previous studies by Tran Xuan et al. (2023) and Li and Gong (2024), which showed that perceived fluidity significantly influences customers' cognitive and emotional engagement with brands. This emphasizes the critical role of perceived fluidity in understanding omnichannel customer behavior, which is often overlooked in previous research. Perceived fluidity, characterized by the ease and convenience of interacting with multiple channels, helps create a more enjoyable and satisfying customer experience. For example, when customers can move from a mobile app to a website without difficulty and with a consistent experience, they tend to feel more satisfied and engaged with the brand (Hamouda, 2019). In addition, this seamlessness also contributes to increasing customers' attention and cognitive focus

on the brand and deepening their emotional engagement, which can ultimately increase customer loyalty. This research provides empirical evidence supporting the importance of prioritizing seamlessness in omnichannel strategies to optimize customer engagement, both cognitive and emotional. Perceived fluidity plays a crucial role in customer interactions with omnichannel banking services, as a smooth and seamless experience can increase customer satisfaction and engagement (Salem & Alanadoly, 2024). Based on cognitive theory, seamless movement between service channels makes it easier for customers to access information and complete transactions, strengthening their cognitive engagement (Gao et al., 2021).

The results reported in Table 3 indicate that the reliability of assurances is essential in building cognitive engagement in omnichannel banking. This finding aligns with previous studies that reveal that the reliability of assurances increases customer trust and perceived security, strengthening cognitive engagement with the brand (Gao et al., 2021; Hossain et al., 2020). High reliability of assurances strengthens customers' belief in the reliability and consistency of banking services, increasing their focus and attention toward interactions with the bank (Supriyanto et al., 2021). For example, customers who use digital banking services with advanced security systems and real-time transaction notifications tend to feel more confident and focused on their financial management (Krishna et al., 2023). Contrary to expectations, it is surprising that this study did not support the relationship between the reliability of assurances and emotional engagement. This means that the reliability of assurances does not directly facilitate emotional engagement in Indonesian omnichannel banking. A promising explanation is that banking customers in Indonesia may emphasize cognitive aspects such as trust and security more than emotional aspects when assessing the reliability of assurances. In addition, cultural and social factors may play an important role, whereby customers may be more likely to respond to emotional engagement through personal interactions or more direct services than technical quality assurance (Riany et al., 2017).

Another important finding is that cognitive and emotional engagement significantly impact brand loyalty in omnichannel banking. The data show that the higher customers' cognitive and emotional engagement, the more likely they are to remain loyal to a bank that provides integrated multichannel services. This research supports previous findings highlighting the importance of cognitive and emotional engagement as critical antecedents to brand loyalty in the financial sector (Islam et al., 2020; Rasool et al., 2021; Tran Xuan et al., 2023). Cognitive engagement, which includes the process of understanding, paying attention to, and analyzing the information customers receive from various bank channels, was shown to increase positive perceptions of the brand (Gao & Huang, 2021). This reflects the importance of providing accurate, relevant, and easily accessible information across all bank communication channels. On the other hand, emotional engagement, which involves an affective and emotional connection between the customer and the bank, strengthens emotional bonds and customer loyalty (Li et al., 2020). Positive experiences, satisfying personal interactions, and values that align with the customer can trigger this emotional engagement. These two forms of engagement, cognitive and emotional, create a well-rounded and satisfying customer experience across all touchpoints with the bank, ultimately increasing brand loyalty (Huang & Chen, 2022). This research emphasizes the importance of banks focusing not only on delivering clear and helpful information but also on building strong emotional relationships with customers. This strategy has proven to be effective in retaining customers and increasing brand loyalty in the omnichannel context in Indonesia, ensuring that customers feel valued and understood at every interaction with the bank.

5. Conclusion

This study uses the SOR (stimulus-organism-response) framework to review the influence of omnichannel properties, namely the quality of integration, perceived fluidity, and the reliability of assurances, on consumer engagement and customer loyalty in the context of omnichannel banking in Indonesia. The research findings show that quality integration ensures a consistent and seamless experience across multiple channels, significantly increasing customers' cognitive and emotional engagement. In addition, perceived fluidity makes interacting and moving between channels easier, creating a pleasant and satisfying experience, thus strengthening customers' cognitive and emotional engagement. High reliability of assurances enhances cognitive engagement through customer trust and perceived security, although it does not directly affect emotional engagement in omnichannel banking. This research confirms that cognitive and emotional engagement are critical determinants in building customer loyalty, with cognitive engagement driven by providing accurate and relevant information, while emotional engagement is strengthened by positive experiences and satisfying personal interactions. Therefore, banks in Indonesia need to focus on an omnichannel strategy that emphasizes quality of integration, perceived fluidity, and the reliability of assurances to maximize customer engagement and loyalty, ensuring that customers feel valued and understood in every interaction they have with the bank.

5.1 Theoretical Implication

This study advances the SOR (stimulus-organism-response) theory by Mehrabian and Russell (1974), particularly within omnichannel banking. While the SOR model has been widely applied across various fields, its use in omnichannel banking offers new insights into how digital and physical service integration shapes customer behavior. Specifically, this research deepens the theoretical understanding of how critical omnichannel attributes—such as quality of integration,

perceived fluidity, and assurance reliability—act as environmental stimuli (S) that influence customers' cognitive and emotional states (O).

This study emphasizes the dual nature of internal responses to omnichannel stimuli by identifying cognitive and emotional engagement as critical intermediary factors. It highlights the importance of considering cognitive and affective processes in customer interactions, as they collectively drive behavioral outcomes like brand loyalty (R). This theoretical framework provides a more nuanced application of the SOR model by incorporating cognitive and emotional dimensions, which have yet to be explored in prior omnichannel research. Furthermore, the findings offer empirical support for the significant influence of integration quality, perceived fluidity, and assurance reliability on these internal states, ultimately enhancing customer loyalty. This study enriches the SOR framework by demonstrating its relevance in modern banking environments, where seamless omnichannel service delivery is pivotal in shaping customer perceptions and behavior.

5.2 Practical Implication

This study provides important managerial implications for increasing customer engagement and loyalty in omnichannel banking. The findings show that higher integration quality significantly improves customer cognitive and emotional engagement. Therefore, the first step that banks must take is to improve the integration quality by ensuring real-time data synchronization across channels. As a concrete example, banks can implement a unified data management platform that integrates all customer interaction points, whether on mobile applications, websites, or physical branches. Regular staff training to ensure that they are able to manage changes in customer data across multiple channels will also ensure consistency and high quality of service. Not only does this create a seamless customer experience, but it also increases emotional engagement through a deeper sense of satisfaction and attachment to the brand.

Furthermore, the study also found that perceived fluidity plays an important role in strengthening cognitive and emotional engagement. To increase this fluidity, banks must focus on developing an intuitive user interface and a consistent user experience across channels. As a specific example, banks can implement single sign-on (SSO), which allows customers to log in once and access all services, whether on mobile apps, websites, or ATMs. In addition, the introduction of a cross-platform notifications feature that notifies customers of their recent activity across multiple channels can help create a smoother experience and reduce confusion. By doing this; banks can improve customer comfort and, in turn, strengthen their emotional and cognitive engagement.

Finally, the findings of this study reveal that assurance reliability has a direct impact on cognitive engagement, although it does not directly affect emotional engagement. To reinforce this trust and sense of security, banks must adopt more robust security measures. Specific examples that can be implemented are two-factor authentication (2FA) implemented in all digital transactions, as well as the use of end-to-end encryption for all customer communications. Banks can also increase transparency by providing periodic security reports that explain to customers how their data are protected, as well as providing regular updates on new security measures adopted. This will not only increase customer trust but also strengthen their cognitive engagement with services that are considered safe and reliable.

With these measures in place, banks can effectively increase customer cognitive and emotional engagement, as well as strengthen customer loyalty in an increasingly digitally integrated banking environment. The combination of the latest technology, consistent staff training, and an emphasis on security will be key to creating a holistic customer experience while improving the bank's competitiveness in an increasingly competitive omnichannel market.

5.3 Limitations and Recommendations for Further Research

Although the findings of this study provide essential theoretical and managerial implications, it still has some limitations that open up opportunities for future research. Firstly, this study is limited to the banking sector in Indonesia, which may restrict the generalizability of its findings to other industries or geographic regions. As a result, the insights derived may only be fully applicable to some industries or outside the Indonesian context. Consequently, future research should consider expanding the scope to various industry sectors and countries to evaluate the universality of these findings. For example, investigating the retail industry, particularly within e-commerce omnichannel environments, could offer a broader perspective, as this sector similarly depends on integration, fluidity, and assurance in customer interactions. Furthermore, conducting research in India, a rapidly developing market with a large population and increasing digital adoption could provide valuable insights into how omnichannel properties influence customer engagement and loyalty across different cultural and economic contexts. Such research would offer a more comprehensive understanding of the role omnichannel attributes play in shaping customer engagement and brand loyalty in diverse settings. Secondly, this study uses a survey method to collect data, which may need to be improved in capturing the dynamics of customer interactions in depth. The impact is that the data obtained may only partially reflect customer behavior in an omnichannel context. Future research should use more diverse research methods, such as case studies or experiments, to gain a more in-depth and detailed understanding of customer behavior. It is expected that the result will be more prosperous and provide more valid data that can strengthen the findings of this study.

Thirdly, this study focused on three main omnichannel properties (quality of integration, perceived seamlessness, and quality of assurance), while other factors that may also be influential were not explored. As a result, understanding the influence of omnichannel properties on customer engagement may need to be completed. Future research is

recommended to add other relevant variables, such as service personalization, customer service quality, and technological innovation, to get a more holistic picture (Calvo et al., 2023; Natarajan & Veera Raghavan, 2024b; Tyrväinen et al., 2020). The results are hoped to identify additional factors contributing to customer engagement and loyalty. Fourth, this study did not examine temporal aspects, such as how customer engagement and brand loyalty may change over time. The impact is that this study may need to provide a complete picture of the long-term dynamics of customer engagement. Future research should use a longitudinal design to track customer engagement and loyalty changes. The result is hoped to provide deeper insight into how the relationship between omnichannel properties and customer engagement evolves over the long term, which can assist banks in planning more effective long-term strategies.

Author Contribution

Andika: writing original draft, conceptualization, data curation, methodology, formal analysis, correspondence, revisions. Atika Aini Nasution: review and editing, validation, visualization. Della Nanda Luthfiana: writing original draft, visualization. Akmal Ihsan: Review, editing, and visualization. Fazah Yuanidhar: data collection and visualization.

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Conflict of Interest

The researchers declare that no potential conflicts of interest are involved in this study's production and distribution.

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APPENDIX 1. Research Instrument

Table. Research Instrument

Variable	Code		Items	Source
Reliability of Assurances	RA	Privacy	1. My personal information across the bank's various channels is protected. 2. My personal information across the bank's multiple channels is not shared with other third parties.	Hossain et al. (2020)
		Security	1. All bank channels have adequate security features. 2. I feel safe using the bank's various channels.	
		Accessibility of Service Recovery	1. The bank provides a means through which I can raise my grievance. 2. I am aware of the channels that can be used to report service issues to the bank.	
Quality of Integration	QI	Multiple Channel Service Options	1. I can get the same service at this bank in many different ways. 2. At this bank, I can choose how to do essential transactions via the Internet, app, or in person at a branch. 3. At my bank, I can get information however I like without being tied down to a single option.	Shen et al. (2018)
		Information Disclosure Service	1. I know all the services I can get from my bank. 2. I understand the differences between services I can access online and those I can do directly at the bank branch office.	
		Consistency Content	1. No matter what channel I use, I always get the same answer or information. 2. When I communicate with the bank through one channel, the bank also considers my communication through other channels important.	
		Consistency Process	1. My experience with bank services is the same no matter how I use them (e.g., at a bank branch, via the Internet, or through mobile banking). 2. My impression of the bank's services is the same, no matter what channel I access them through.	
Perceived Fluidity	PF	Task Ability	1. I can move my transactions seamlessly between multiple channels. 2. I can move my transactions smoothly from one channel to another.	Shen et al. (2018) and Xuan et al. (2023)
		Content Ability	1. My bank supports my smooth viewing/reading of the same information on the new channel after I switch channels. 2. After switching channels, I can easily find what I saw/read on the previous channel.	
		Interaction Ability	1. My experience conducting transactions across multiple channels (e.g., online, in-branch, over the phone) was smooth and connected. 2. I can be clear about the services I want to use when I contact my bank.	
		Cognitive Ability	1. After switching channels, my understanding of the transaction remains the same. 2. After the channel transition, I can perform transactions correctly on the new channel.	
		Feeling Ability	1. After switching channels, my satisfaction level remains the same. 2. After switching channels, my level of liking remains the same.	
Cognitive Engagement	CE	1. Using omnichannel services from this bank makes me think about it often. 2. I often think of this bank when I use its omnichannel services. 3. Using this bank's omnichannel services makes me want to know more about this bank		Tran Xuan et al. (2023)
Emotional Engagement	EE	1. I feel very positive when interacting with this bank. 2. Interacting with this bank makes me happy. 3. I spend much more time using this bank's one-stop service than other brands. 4. I often use the convenience services of this bank compared to other brands.		
Brand Loyalty	BL	1. I often say positive things about this bank to others. 2. I recommend this bank to others. 3. I encourage my friends and relatives to use this bank's services. 4. This bank is my first choice for banking services. 5. I will do more transactions with this bank in the future.		Hamouda (2019)