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# Linking Omnichannel Integration Quality and Customer Loyalty in Vietnamese Banks

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## Abstract

**Purpose:** This study investigates the complex dynamics of consumer behavior in Vietnamese banking omnichannel environments, focusing on the roles of service consistency, service transparency, flow, perceived privacy risk, and loyalty intention. **Research design, data and methodology:** Using a sample of 422 Vietnamese bank customers, data analysis revealed significant relationships among the variables under investigation. **Results:** Firstly, service consistency was found to positively influence flow experiences and negatively impact perceived privacy risk, highlighting the importance of uniform service quality across channels in enhancing consumer engagement while mitigating privacy concerns. Similarly, service transparency was positively associated with flow experiences and negatively associated with perceived privacy risk, underscoring the importance of transparent information dissemination in fostering immersive consumer experiences while alleviating privacy apprehensions. Furthermore, both flow experiences and perceived privacy risk significantly influenced loyalty intentions, indicating the pivotal roles of engaging experiences and data security in driving consumer loyalty. Additionally, mediated relationships were observed, demonstrating the interplay between service consistency, service transparency, flow, perceived privacy risk, and loyalty intention in shaping consumer behavior in omnichannel contexts. **Conclusions:** These findings provide valuable insights for retailers and marketers seeking to optimize consumer experiences and cultivate loyalty in omnichannel environments by prioritizing consistency, transparency, and data privacy protection.

**Keywords :** Distribution, Omnichannel Integration Quality, Customer Experience, Customer Loyalty, Vietnamese Banks.

**JEL Classification Code:** M31, L81, L86.

## 1. Introduction

Omni-channel integration is acquiring significant interest from academia and practitioners. It is posited that omnichannel retail integration boosts operational productivity and fosters comprehensive customer experiences, transforming physical stores into prime venues for distinct sensory shopping encounters (Von Briel, 2018). The quality of perceived omnichannel integration plays a critical role in influencing cross-buying behaviors and customer value, serving as a conduit that partially mediates the relationship between omnichannel integration quality

and perceived customer value (Hossain et al., 2020). Furthermore, the dimensions of channel integration quality positively impact customer engagement, which subsequently fosters positive word-of-mouth and intentions to repurchase (Lee et al., 2019). In retail, integrating offline and online channels enables retailers to implement dynamic, differentiated pricing strategies, enhancing the profitability of omnichannel management (Chenavaz et al., 2022). Additionally, the quality of omnichannel integration is instrumental in augmenting customer engagement and receptiveness to relationship programs, ultimately bolstering customer loyalty (Gao & Huang, 2021).

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Ultimately, effective omnichannel integration streamlines the consumer experience, ensuring seamless transitions between various touchpoints throughout the customer journey (Palazón et al., 2022).

In the banking sector, transforming distribution channels is undertaken by implementing the omnichannel management system, enhancing customer experience (Menrad, 2020). Banks need to manage customers holistically by utilizing integrated distribution channels; however, this has yet to be achieved (Hughes, 2003). By the end of 2022, the Vietnamese banking system consisted of 4 state-owned commercial banks, each state holding over 50% of charter capital; 3 compulsory acquired banks; 1 social policy bank; 1 Vietnam Development Bank; 28 joint-stock commercial banks; 2 joint-ventured banks; 9 wholly foreign-owned banks; 50 branches of foreign banks; 26 finance, leasing companies; 1 Cooperative Bank; 1,181 people's credit funds; and 4 microfinance institutions (State Bank of Vietnam, 2023). In Vietnam, following the digital transformation strategy decided by the Governance of the State Bank of Vietnam (State Bank of Vietnam, 2021), 81% of commercial banks have indicated that they are actively developing a strategy for digital transformation. Among these, 88% have opted to undergo digital conversion for both customer communication channels (front-end) and internal operations (back-end) or to digitize fully (Pham, 2021). Notably, only 6% of these banks intend to digitize customer communication channels (Pham, 2021). By the end of 2022, the digital transformation strategy involves many financial institutions achieving a transaction rate of over 90% through digital channels (State Bank of Vietnam, 2023). Some of these institutions have effectively improved their operations by actively embracing digital transformation, reducing their Cost-to-Income Ratio (CIR) to around 30%, approaching the ratio many regional and international banks strive for in their digital transformation efforts (State Bank of Vietnam, 2023). Hence, it is vital to achieve channel integration in Vietnam's banking sector.

The relationship between omnichannel service integration quality and loyalty intention via customer experience has yet to be explored; however, the link between omnichannel integration and customer experience and that between customer experience and customer retention has been investigated. Channel integration is considered a predictor of customer experience (Cambra-Fierro et al., 2021; Gao et al., 2021; Nguyen, 2021; Quach et al., 2022). For example, through a survey of 786 customers of Wal-Mart in the US, Quach et al. (2022) claim that service consistency— one dimension of channel integration impacts flow and privacy risk, while service transparency – the other dimension only impacts flow. Nguyen (2021) collected data from 351 retail customers in 3 big cities in Vietnam, revealing that content consistency and process consistency

positively affect customer experience. Moreover, customer experience predicts loyalty intention (Quach et al., 2022).

This research contributes to the literature on channel integration, customer experience, and customer retention in the following aspects. First, though the relationships between service consistency, service transparency, flow, perceived privacy risk, and loyalty intention have been investigated, the mediating role of flow and perceived privacy risk has yet to be confirmed in empirical studies. Moreover, the prior researchers focused on the retailing sectors (Gao & Huang, 2021; Nguyen, 2021; Quach et al., 2022) while neglecting the banking sector. Each industry has distinct features and focus; hence, inferring the results from different sectors to the banking sector is inappropriate.

## **2. Literature review**

### **2.1. The Stimuli-Organism-Response Model**

The Stimuli-Organism-Response (S-O-R) model can be traced back to the study of Mehrabian and Russell (1974), which offers a valuable framework for understanding consumer behavior and experiences in omnichannel integration. Initially employed by Donovan et al. (1994), this framework was utilized to examine how the retail environment influences consumer decision-making empirically. Park and Lennon (2009) applied the S-O-R model to online shopping. Their study categorized stimuli as the brand name and promotional efforts, organisms as perceived value and store image, and responses as purchase intentions. Similarly, Anisimova et al. (2019) employed the S-O-R framework in branding. In this model, stimuli encompass the diverse touchpoints and engagements spanning various channels, comprising websites, mobile applications, social media platforms, and brick-and-mortar stores. These stimuli encompass marketing messages, product information, user interfaces, and customer service interactions. The organism refers to the individual consumer, incorporating their characteristics, preferences, attitudes, and psychological states. Finally, the response encompasses the consumer's behavioral and emotional reactions to the stimuli, shaped by their internal psychological processes and individual characteristics. In omnichannel integration, the S-O-R model suggests that consumers' responses, such as satisfaction, loyalty, and purchase behavior, are influenced not only by the stimuli encountered but also by their internal psychological states, such as perceived privacy risks, flow experiences, and perceptions of service consistency and transparency across channels (Rose et al., 2012; Shen et al., 2018; Lee et al., 2019).

In several studies, this model has been utilized in omnichannel literature (Le & Nguyen-Le, 2020; Pereira et

al., 2023; Rodríguez-Torrico et al., 2023; Zhang et al., 2018). This model is also used to explain the mediating role of customer states between organizational efforts, such as collaborative marketing, and customer behaviors, such as loyalty, retention, and word-of-mouth (Chen et al., 2022; Mishra et al., 2023; Rodríguez-Torrico et al., 2023; Zhang et al., 2018). Hence, it is reasonable to use this model in this research.

## 2.2. Flow Theory

Flow theory, introduced by Csikszentmihalyi (1975), provides a framework for understanding optimal human experiences in various activities. Csikszentmihalyi (1975) defines flow as a mental state in which individuals are fully immersed in energized focus, full involvement, and enjoyment in an activity. According to Csikszentmihalyi (1988), flow occurs when there is a perfect match between the perceived challenges of a task and one's skills and abilities to meet those challenges. In this state, individuals experience a deep sense of satisfaction and fulfillment. Flow theory has been thoroughly investigated and utilized in various disciplines, from psychology and education to sports and business. The notion of flow holds relevance across diverse contexts, including work environments, leisure activities, and endeavors involving creativity (Csikszentmihalyi, 1988, 1997).

In omnichannel retailing, flow refers to a state of complete absorption and engagement in the shopping process across multiple channels, where individuals become fully immersed in the experience (Rose et al., 2012). According to flow theory, achieving flow requires balancing the challenges presented by the shopping tasks and the individual's skills and capabilities (Csikszentmihalyi, 1988, 1997). In an omnichannel context, consumers may experience flow when they seamlessly navigate different channels, encountering personalized recommendations, intuitive interfaces, and consistent service quality (Lee et al., 2019). Flow experiences in omnichannel environments are characterized by enjoyment, focus, and satisfaction, where individuals lose track of time and feel in control of their shopping journey (Rose et al., 2012).

The flow theory is applied and proven in marketing research (Balakrishnan & Dwivedi, 2021; Quach et al., 2022), especially in explaining the relationship between omnichannel integration and customer experience (Quach et al., 2022). Hence, it is reasonable to apply this theory in this research.

## 2.3. Hypothesis and Research Model

### 2.3.1. Omnichannel Integration Quality

As defined by Sousa and Voss (2006), omnichannel

integration quality refers to a company's capacity to offer consumers a seamless purchasing experience across multiple channels. The primary distinction between Multichannel and Omnichannel lies in the integration of services (Verhoef et al., 2015). Recognized as a critical predictor of customer cognition and behavior, omnichannel integration quality has been extensively studied (Gao & Huang, 2021; Hamouda, 2019; Lazaris et al., 2021; Piotrowicz & Cuthbertson, 2014; Quach et al., 2022; Rodríguez-Torrico et al., 2020; Tyrväinen et al., 2020). Channel integration quality can be assessed along two primary dimensions: channel service configuration and integrated interactions (Sousa & Voss, 2006). Channel service configuration pertains to retailers' ability to maintain consistent customer service quality while performing similar tasks through different channels (Banerjee, 2014). This dimension can be evaluated through channel choice breadth and channel service transparency. Channel choice breadth indicates the availability of diverse channels for customers to complete specific tasks, ensuring unrestricted access to services (e.g., shopping, returns, information search) offered across various channels operated by the same retailer (Choi et al., 2010; Sousa & Voss, 2006). Conversely, channel service transparency refers to customers' awareness or familiarity with the attributes of all available channels, facilitated by retailers' efforts to acquaint customers with channel options and their service capabilities (Wu & Chang, 2016). Integrated interactions are assessed through variables such as content consistency and process consistency. Content consistency involves customers receiving uniform information from the retailer across different channels during transactions. In contrast, process consistency entails perceived consistency in service processes for customers accessing various channels operated by the same retailer (Sousa & Voss, 2006).

Two fundamental components of omnichannel integration quality, identified by Lee et al. (2019) and Shen et al. (2018), are service consistency and service transparency. Service consistency refers to the coherence of information, services, and experiences across various channels, ensuring uniformity in customer interactions (Lee et al., 2019; Shen et al., 2018). Meanwhile, service transparency involves effectively communicating additional and complementary information about a retailer's services and their discrepancies across all platforms (Shen et al., 2018). Specifically, service consistency encompasses the availability of services in each channel at any given time, while service transparency facilitates customer experience by enabling them to discern which services are accessible through which channels (Lee et al., 2019; Shen et al., 2018).

### 2.3.2. Customer Experience

Customer experience refers to customers' internal and

subjective reactions to their direct and indirect interactions with various touchpoints offered by a company (Lemon & Verhoef, 2016). However, a lack of consensus exists regarding the dimensionality of the customer experience (Quach et al., 2022). Helkkula (2011) identifies three characterizations of service experience in the literature: phenomenological, process-based, and outcome-based service experiences. Klaus et al. (2012) argue that service experience encompasses customers' evaluations of all aspects of their interactions with a service provider, subsequently influencing their behavioral loyalty through repeat purchases. They propose product experience, outcome focus, moments of truth, and peace of mind. In omnichannel literature, Hilken et al. (2018) elaborate on customer experience components, including emotional fit, flow, immersion fidelity, and spatial presence. Conversely, Mahrous and Hassan (2017) emphasize perceived risk, consumer innovativeness, convenience seeking, and shopping enjoyment as primary components of customer experience in multi-channel retailing. This study concurs with Quach et al. (2022) regarding the two pivotal dimensions of customer experience in omnichannel: flow and perceived risk. Flow, or fluency, representing the positive aspect of customer experience in omnichannel, denotes a state of complete absorption in an activity to the extent that individuals lose track of time and surroundings (Rose et al., 2012). On the other hand, perceived risk delineates the opposing facet of customer experience, referring to the increased exposure and disclosure of personal information across diverse platforms in omnichannel retailing compared to traditional models (Piotrowicz & Cuthbertson, 2014).

### 2.3.3. Service consistency and customer experience

Ensuring service consistency is paramount for cultivating the flow experience within omnichannel environments. Service consistency entails the coherence of information, services, and experiences across diverse channels, thereby upholding consistency in customer interaction (Lee et al., 2019; Shen et al., 2018). According to group entitativity theory, service consistency increases the integration of various channels in one group, resulting in channel switch tends to be natural, unhindered, and effortless (McConnell et al., 1997; Wu & Chang, 2016). Customers who encounter consistent service quality across various channels are more likely to navigate seamlessly and engage deeply with the brand. Lee et al. (2019) emphasize the significance of service consistency, highlighting its positive impact on customer trust and brand perception. Their study found that customers value uniformity in information, services, and experiences regardless of the channel they use. Furthermore, Rose et al. (2012) discuss the concept of flow as a state of complete absorption and

engagement in an activity. In omnichannel retailing, achieving flow requires minimizing disruptions and facilitating effortless channel transitions.

Service consistency within omnichannel integration has been shown to impact perceived privacy risk among consumers significantly. Research by Lee et al. (2019) underscores the importance of maintaining consistency in information, services, and experiences across various channels. When customers encounter discrepancies or inconsistencies in how their data is handled or shared across channels, it can lead to heightened concerns about privacy risks. Shen et al. (2018) further highlight the role of service transparency in addressing such problems, emphasizing the importance of retailers' efforts to acquaint customers with channel options and their service capabilities. By establishing a consistent and transparent strategy for data management and communication across all channels, businesses can effectively reduce perceived privacy risks and bolster consumer trust in omnichannel environments. This implies that customers may be more inclined to accept the gathering of their private information in exchange for consistent services across various platforms, underscoring the role of service consistency in diminishing perceived privacy concerns.

Several studies empirically prove the linkage between service consistency and fluency (Li & Gong, 2022; Quach et al., 2022; Shen et al., 2018) and service consistency and perceived risk (Quach et al., 2022).

Hence, the author hypothesizes that:

**H1a:** Service consistency positively affects flow.

**H1b:** Service consistency negatively influences perceived privacy risk.

### 2.3.4. Service transparency and customer experience

Service transparency in omnichannel environments is posited to impact flow or fluency experiences among consumers positively. As per Shen et al. (2018), service transparency encompasses ensuring customers are informed or acquainted with the characteristics of all accessible channels, facilitated by retailers' initiatives to familiarize customers with channel options and their service capabilities. In omnichannel retailing, attaining flow necessitates reducing disruptions and facilitating seamless channel transitions. By providing transparent information about channel options and service capabilities, businesses can enhance customers' understanding and confidence in navigating across different platforms, promoting a smoother, more immersive omnichannel experience (Quach et al., 2022). Therefore, service transparency positively influences flow or fluency in omnichannel environments by fostering a sense of coherence and ease in customer interactions across multiple channels.

Service transparency in omnichannel environments is

theorized to impact reducing perceived privacy risk among consumers positively. Shen et al. (2018) define service transparency as customers' awareness or familiarity with the attributes of all available channels, facilitated by retailers' efforts to acquaint customers with channel options and their service capabilities. When customers have clear and transparent information about managing and utilizing their data across various channels, they may perceive a lower privacy risk. This is supported by the concept that transparency builds trust (Auger, 2014; Cheah et al., 2022; Shen et al., 2018), as consumers are more likely to trust businesses that openly communicate about their data practices. Therefore, enhancing service transparency in omnichannel environments may reduce perceived privacy risk as customers feel more informed and reassured about their data privacy and security.

Several studies prove the relationship between service transparency and flow (Quach et al., 2022). Quach et al. (2022) discovered that service transparency does not affect perceived risk. However, in this research, the author still believes that service transparency negatively affects perceived privacy risks and positively impacts flow.

Hence, the author hypothesizes that:

**H2a:** Service transparency positively affects flow.

**H2b:** Service transparency positively influences perceived risk.

### 2.3.5. Customer experience and loyalty intention

Flow, or fluency, experiences in consumer interactions within omnichannel environments are hypothesized to influence loyalty intentions positively. According to Rose et al. (2012), flow represents a state of complete absorption and engagement in an activity where individuals lose track of time and surroundings. This heightened state of engagement often leads to positive affective responses and satisfaction with the overall experience. Research by Lee et al. (2019) further suggests that satisfied and engaged customers are more likely to develop emotional connections with the brand, leading to increased loyalty intentions. Additionally, Wu and Chang (2016) found that flow experiences positively impact customer loyalty through enhanced trust and perceived value. Therefore, when consumers experience flow or fluency in their interactions across various channels, they are more likely to develop stronger emotional bonds with the brand and exhibit higher intentions to remain loyal over time.

Perceived privacy risk is hypothesized to have a negative impact on loyalty intentions among consumers in omnichannel environments. Studies such as those conducted by Bansal et al. (2016) suggest that concerns about privacy and data security can erode trust in a brand, leading to decreased loyalty intentions. Furthermore, research by Dinev and Hart (2006) indicates that perceived privacy risks

can result in consumers' hesitation to share personal information, which may hinder the development of personalized and tailored experiences essential for building strong customer relationships. Additionally, according to a study by Milne and Gordon (1993), individuals are less likely to engage in repeat transactions with companies that they perceive as not adequately safeguarding their privacy. Therefore, it can be hypothesized that heightened perceived privacy risks in omnichannel interactions may lead to decreased loyalty intentions as consumers become less willing to engage with the brand over time.

Hence, the author hypothesizes that:

**H3a:** Flow positively affects loyalty intention.

**H3b:** Perceived risk negatively influences loyalty intention.

### 2.3.6. The mediator role of flow

Research suggests that flow, as experienced by consumers in their interactions with a brand, may mediate the relationship between service consistency and loyalty intentions. Lee et al. (2019) emphasize the importance of service consistency in maintaining coherent and seamless experiences across various channels. They suggest that when customers encounter consistent service quality regardless of their channel, it fosters a sense of reliability and familiarity, which are conducive to flow experiences. Furthermore, studies by Rose et al. (2012) and Wu and Chang (2016) highlight the positive impact of flow experiences on emotional engagement and satisfaction, leading to increased loyalty intentions. Therefore, it can be inferred that flow acts as a mediator between service consistency and loyalty intentions, wherein consistent service quality enhances flow experiences, which, in turn, fosters stronger emotional connections with the brand and more excellent intentions to remain loyal over time.

Research indicates that flow experiences may mediate the relationship between service transparency and loyalty intentions in omnichannel settings. Shen et al. (2018) define service transparency as customers' awareness or familiarity with the attributes of all available channels, facilitated by retailers' efforts to acquaint customers with channel options and their service capabilities. When customers have clear and transparent information about channel options and service capabilities, they are more likely to navigate seamlessly and engage deeply with the brand, leading to flow experiences. Studies by (Rose et al., 2012) and Wu and Chang (2016) demonstrate the positive impact of flow experiences on emotional engagement and satisfaction, which, in turn, influence loyalty intentions. Therefore, flow mediates the relationship between service transparency and loyalty intentions, as transparent information about channel options and service capabilities enhances flow experiences, fostering stronger emotional connections with the brand and greater intentions to remain loyal over time.



Therefore, the author hypothesizes that:

**H<sub>4a</sub>:** Flow mediates the relationship between service consistency and loyalty intention.

**H<sub>4b</sub>:** Flow mediates the relationship between service transparency and loyalty intention.

### 2.3.7. The mediator's role in Perceived privacy risk

Research suggests that perceived privacy risk may mediate the relationship between service consistency and loyalty intentions in omnichannel environments. Lee et al. (2019) emphasize the significance of service consistency in maintaining uniform service quality across different channels. They argue that inconsistencies in how customer data is handled or shared across channels can heighten concerns about privacy risks. Bansal et al. (2016) highlight that perceived privacy risks can erode trust in a brand, ultimately affecting loyalty intentions. Moreover, Dinev and Hart (2006) suggest that privacy concerns may lead to consumer hesitancy in sharing personal information, which is crucial for building personalized experiences that foster loyalty. Therefore, it can be inferred that perceived privacy risk mediates the relationship between service consistency and loyalty intentions, as inconsistencies in service quality across channels may heighten privacy concerns, consequently reducing trust and loyalty intentions toward the brand.

Research suggests that perceived privacy risk may mediate the relationship between service transparency and loyalty intentions in omnichannel contexts. Shen et al. (2018) define service transparency as customers' awareness or familiarity with the attributes of all available channels, facilitated by retailers' efforts to acquaint customers with channel options and their service capabilities. When customers perceive transparency in how their data is handled and shared across channels, it may reduce concerns about privacy risks. Bansal et al. (2016) emphasize that perceived privacy risks can erode trust in a brand, ultimately influencing loyalty intentions. Furthermore, Dinev and Hart (2006) suggest that privacy concerns may deter customers from engaging with a brand, impacting their loyalty intentions. Therefore, it is plausible that perceived privacy risk mediates the relationship between service transparency and loyalty intentions, as transparency in data handling practices may alleviate privacy concerns, subsequently enhancing trust and loyalty intentions toward the brand.

Therefore, the author hypothesizes that:

**H<sub>5a</sub>:** Perceived privacy risks mediate the relationship between service consistency and loyalty intention.

**H<sub>5b</sub>:** Perceived privacy risks mediate the relationship between service transparency and loyalty intention.

Figure 1 illustrates the research model.

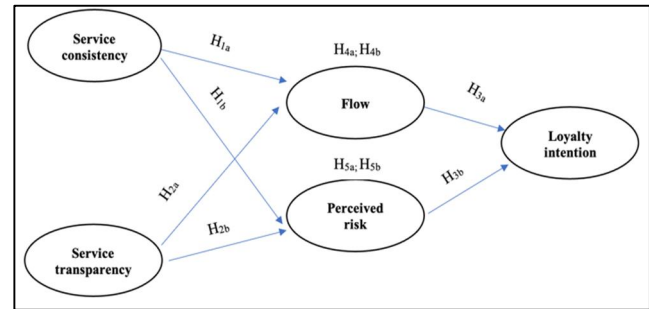


Figure 1: Research Model

## 3. Methodology

### 3.1. Sample

Table 1 presents the demographic of the sample employed in this study.

Table 1: Sample Demographics

| No | Variables/ criteria | Frequency | Percentage |
|----|---------------------|-----------|------------|
| 1  | <b>Sex</b>          |           |            |
|    | Male                | 166       | 39.3       |
|    | Female              | 256       | 60.7       |
| 2  | <b>Age</b>          |           |            |
|    | From 18 - 30        | 175       | 41.5       |
|    | From 30 - 40        | 193       | 45.7       |
|    | From 40 - 50        | 46        | 10.9       |
|    | From 50-60          | 8         | 1.9        |
| 3  | <b>Education</b>    |           |            |
|    | College             | 1         | 0.2        |
|    | Undergraduate       | 323       | 76.5       |
|    | Graduate            | 98        | 23.2       |
| 4  | <b>Banks</b>        |           |            |
|    | AgriBank            | 124       | 29.4       |
|    | BIDV                | 105       | 24.9       |
|    | Vietin Bank         | 98        | 23.2       |
|    | Vietcombank         | 95        | 22.5       |

The questionnaires were created in Google platform and sent to customers of 4 Big Banks in Vietnam: Agribank, BIDV, Vietinbank, and Vietcombank. In total, 422 questionnaire answerers were collected in this study. Most of the respondents were from the North of Vietnam. The sample demographics of this research sample encompass a diverse range of customers, containing 422 respondents. In terms of gender distribution, the majority of respondents were female, accounting for 60.7% of the sample, while males represented 39.3%. Regarding age, the most significant proportion fell within the 30 and 40 age group, comprising 45.7% of the sample, followed by those aged between 18 and 30, representing 41.5%. The remaining respondents were distributed across older age groups, with

fewer individuals aged between 40 and 50 (10.9%) and even fewer in the 50 to 60 age range (1.9%). In terms of education, most respondents were undergraduates, accounting for 76.5% of the sample, followed by graduate degree holders at 23.2%, with only a negligible percentage having completed college education (0.2%). Lastly, the sample consisted of customers from various banks, with Agri Bank, BIDV, VietinBank, and Vietcombank being the most prevalent, representing 29.4%, 24.9%, 23.2%, and 22.5% of the sample, respectively.

### 3.2. Measure

Service consistency and service transparency were measured using the scales developed by Lee et al. (2019). Lee et al. (2019) proposed a 4-item scale to measure service transparency and a 4-item scale to measure service consistency. One example of 4 items measuring service consistency is “The service images are consistent across all of the Bank’s channels.” An example of 4 items used to measure service transparency is “I am aware of available services of all of the Bank’s channels.” The respondents were asked to assess their level of agreement with the statements. The author employed the Likert 5.

Flow was measured using the scale adopted from Hamilton et al. (2016) suggestion. Hamilton et al. (2016) proposed a 3-item scale to measure flow in omnichannel. One example of the three items was “I was enthusiastic while experiencing service through different channels of the Bank.” The respondents were asked to assess their level of agreement with the statements. The author employed the Likert 5.

Perceived privacy risk was measured using a scale developed by Kukar-Kinney and Close (2010). Kukar-Kinney and Close (2010) suggested a scale that included three statements. The respondents were asked to assess their level of agreement with the statements, with 1 = totally disagreed and 5 = totally agreed. One example of the three statements is, “I am concerned about my personal privacy on these different channels.”

Loyalty intention was measured using the scale from Baker et al. (2002). Baker et al. (2002) developed the loyalty intention scale using four statements. The respondents were asked to assess their level of agreement with the statements, with 1 = totally disagreed and 5 = totally agreed. One example of the four statements was, “I am willing to use the service of the Bank.”

## 4. Results

### 4.1. The Measurement Model

Table 2 illustrates the measurement model testing results.

**Table 2:** Reliability, Convergence, Discriminant

| Items | Outer loadings | Cronbach alpha | CR    | AVE   | HTMT          |
|-------|----------------|----------------|-------|-------|---------------|
| SC1   | 0.807          | 0.825          | 0.826 | 0.656 | 0.358 – 0.466 |
| SC2   | 0.848          |                |       |       |               |
| SC3   | 0.804          |                |       |       |               |
| SC4   | 0.780          |                |       |       |               |
| ST1   | 0.741          | 0.840          | 0.862 | 0.677 | 0.342 – 0.436 |
| ST2   | 0.845          |                |       |       |               |
| ST3   | 0.816          |                |       |       |               |
| ST4   | 0.882          |                |       |       |               |
| F1    | 0.893          | 0.808          | 0.841 | 0.720 | 0.342 – 0.478 |
| F2    | 0.873          |                |       |       |               |
| F3    | 0.775          |                |       |       |               |
| PR1   | 0.873          | 0.794          | 0.796 | 0.709 | 0.370 – 0.478 |
| PR2   | 0.824          |                |       |       |               |
| PR3   | 0.828          |                |       |       |               |
| LI1   | 0.801          | 0.786          | 0.804 | 0.605 | 0.349 – 0.404 |
| LI2   | 0.777          |                |       |       |               |
| LI3   | 0.739          |                |       |       |               |
| LI4   | 0.793          |                |       |       |               |

Note: SC – service consistency; ST – service transparency; F – flow; PR – perceived privacy risk; LI: loyalty intention.

Table 2 displays the measurement model's quality, reliability, convergence, and discriminant. The author follows the instructions of Hair et al. (2014) to assess the quality, reliability, convergence, and discriminant of the measurement model. The author employs the outer loadings to check the quality of the observed variables in this model. Hair et al. (2014) state that the outer loadings should exceed the cut-off 0.7. As is shown in Table 2, all outer loadings are more significant than 0.7. Hence, the quality of observed variables is insured.

Moreover, as displayed in Table 2, the reliability of the measurement model is guaranteed. To assess the reliability of variables in the model, the author utilizes the Cronbach alpha coefficient and composite reality coefficients (CR). Hair et al. (2017) suggested that the Cronbach alpha coefficient and CR should be greater than 0.7. As illustrated in Table 2, all the Cronbach alpha coefficients and CR exceed 0.7, showing that the reliability of all variables in this model is ensured.

Furthermore, the author follows the guidelines of Hair et al. (2017) to detect the convergence of the measurement model employing average value extracted (AVE) coefficients. According to Hair et al. (2017), AVE coefficients should exceed the threshold of 0.5. As is shown in Table 2, all AVE coefficients are more significant than 0.5, illustrating the sufficient convergence level. Finally, to assess the discriminant validity of the measurement models, the author employs the suggestions of Hair et al. (2014) using Heterotrait – Monotrait (HTMT) ratios. Hair et al. (2014) suggests that HTMT ratios should be smaller than

0.85. As is displayed in Table 2, all HTMT ratios are smaller than the cut-off suggested by Hair et al. (2014). Hence, the discriminant validity is ensured.

## 4.2. Hypotheses Testing

Table 3 displays the hypotheses testing results.

**Table 3:** Hypotheses Testing.

| Relationships                        | Adjusted $\beta$ | P     | Decisions              |
|--------------------------------------|------------------|-------|------------------------|
| SC $\rightarrow$ F                   | 0.230            | 0.000 | Accept H <sub>1a</sub> |
| SC $\rightarrow$ PR                  | -0.292           | 0.000 | Accept H <sub>1b</sub> |
| ST $\rightarrow$ F                   | 0.219            | 0.000 | Accept H <sub>2a</sub> |
| ST $\rightarrow$ PR                  | -0.268           | 0.000 | Accept H <sub>2b</sub> |
| F $\rightarrow$ LI                   | 0.211            | 0.000 | Accept H <sub>3a</sub> |
| PR $\rightarrow$ LI                  | -0.218           | 0.000 | Accept H <sub>3b</sub> |
| SC $\rightarrow$ F $\rightarrow$ LI  | 0.049            | 0.024 | Accept H <sub>4a</sub> |
| ST $\rightarrow$ F $\rightarrow$ LI  | 0.046            | 0.017 | Accept H <sub>4b</sub> |
| SC $\rightarrow$ PR $\rightarrow$ LI | 0.064            | 0.004 | Accept H <sub>5a</sub> |
| ST $\rightarrow$ PR $\rightarrow$ LI | 0.059            | 0.011 | Accept H <sub>5c</sub> |

Note: SC – service consistency; ST – service transparency;  
F – flow; PR – perceived privacy risk; LI: loyalty intention.

The hypotheses testing results indicate significant relationships between the variables under investigation. Firstly, the relationship between service consistency (SC) and flow (F) was found to be positive and significant (Adjusted  $\beta = 0.230$ ,  $p < 0.001$ ), supporting Hypothesis 1a. Similarly, the relationship between service consistency and perceived privacy risk (PR) was negative and significant (Adjusted  $\beta = -0.292$ ,  $p < 0.001$ ), confirming Hypothesis 1b. Additionally, the relationship between service transparency (ST) and flow was positive and significant (Adjusted  $\beta = 0.219$ ,  $p < 0.001$ ), supporting Hypothesis 2a. In contrast, the relationship between service transparency and perceived privacy risk was negative and significant (Adjusted  $\beta = -0.268$ ,  $p < 0.001$ ), validating Hypothesis 2b. Furthermore, both flow (F) and perceived privacy risk (PR) were found to significantly influence loyalty intention (LI), with positive and negative relationships, respectively (Adjusted  $\beta = 0.211$ ,  $p < 0.001$  for F; Adjusted  $\beta = -0.218$ ,  $p < 0.001$  for PR), supporting Hypotheses 3a and 3b. Finally, the mediated relationships (SC  $\rightarrow$  F  $\rightarrow$  LI, ST  $\rightarrow$  F  $\rightarrow$  LI, SC  $\rightarrow$  PR  $\rightarrow$  LI, and ST  $\rightarrow$  PR  $\rightarrow$  LI) were all found to be significant, indicating that both flow and perceived privacy risk mediate the relationships between service consistency, service transparency, and loyalty intention, thereby confirming Hypotheses 4a, 4b, 5a, and 5c, respectively. Overall, the findings support the hypothesized relationships among the variables.

## 5. Discussions and limitations

### 5.1. Discussions

The hypotheses testing results provide valuable insights into the complex interplay between service consistency, service transparency, flow, perceived privacy risk, and loyalty intention in omnichannel environments. Firstly, the positive and significant relationship between service consistency and flow underscores the importance of consistent service delivery across various channels to enhance consumers' immersive experiences. Consumers are more likely to engage deeply and enjoy the shopping process when they encounter uniformity and reliability in service quality across different touchpoints. This finding aligns with previous research emphasizing the role of consistency in building trust and positive brand perceptions among consumers (Lee et al., 2019; Quach et al., 2022; Shen et al., 2018). These results indicate that it is vital to facilitate service consistency and flow. Improving service consistency and flow in omnichannel banking requires integrating technology, training employees, and gathering customer feedback. Vietnamese banks can enhance customer journey and satisfaction across all channels by streamlining processes, offering personalized experiences, and ensuring security.

Additionally, the negative and significant relationship between service consistency and perceived privacy risk highlights the impact of consistent data handling practices on consumers' privacy concerns. When consumers perceive transparency and consistency in managing their personal information across channels, they are less likely to perceive privacy risks, fostering a sense of trust and confidence in the brand. This result aligns with the results reported by Quach et al. (2022). This finding underscores the importance of transparent communication and data management practices in alleviating consumers' privacy concerns and maintaining their trust in Vietnamese banking omnichannel environments. To bolster service consistency, it is imperative to standardize procedures and offer continuous training to staff members. Furthermore, the integration of continuous quality assurance checks and feedback mechanisms is crucial for fostering improvement (Quach et al., 2022).

Similarly, the positive and significant relationship between service transparency and flow emphasizes the role of clear and transparent information in enhancing consumers' immersive experiences across channels. This result aligns with the results reported by Quach et al. (2022). When consumers can access comprehensive and transparent information about channel options and service capabilities, they are better equipped to navigate seamlessly and engage deeply in shopping. This finding highlights the importance



of providing consumers with transparent and user-friendly interfaces that facilitate smooth and intuitive interactions across channels (Rose et al., 2012).

Moreover, the negative and significant relationship between service transparency and perceived privacy risk underscores the importance of transparent data handling practices in mitigating consumers' privacy concerns. This result disagrees with the results reported by Quach et al. (2022). When consumers perceive transparency in managing and sharing their personal information across channels, they are less likely to perceive privacy risks, fostering trust and confidence in the brand. This finding underscores the need for Vietnamese banks to prioritize transparency and accountability in their data management practices, building and maintaining consumer trust in omnichannel environments (Shen et al., 2018). The findings suggest that businesses should prioritize transparent data-handling practices to effectively alleviate consumers' privacy concerns (Smith et al., 2020). By enhancing service transparency, Vietnamese banks can cultivate customer trust and confidence, improving satisfaction and loyalty. Additionally, investing in clear communication strategies regarding data usage and privacy policies can help Vietnamese banks build stronger relationships with their clientele while mitigating potential privacy risks.

Furthermore, flow's vivacious and significant influence on loyalty intention highlights the importance of immersive and engaging experiences in driving consumer loyalty. When consumers experience flow during their interactions with the brand across channels, they are more likely to develop strong emotional connections and loyalty intentions. This finding underscores the importance of designing seamless and enjoyable experiences that captivate and retain consumers' attention across various touchpoints (Lee et al., 2019).

Similarly, the negative and significant influence of perceived privacy risk on loyalty intention emphasizes the detrimental impact of privacy concerns on consumer loyalty. When consumers perceive high levels of privacy risk in their interactions with the brand, they are less likely to develop trust and loyalty intentions. This finding underscores the importance of addressing consumers' privacy concerns and implementing robust data protection measures to safeguard their trust and loyalty in omnichannel environments (Bansal et al., 2016; Dinev & Hart, 2006).

Finally, the significant mediated relationships between service consistency, service transparency, flow, perceived privacy risk, and loyalty intention highlight these variables' complex interplay in consumer behavior and intentions in omnichannel environments. The findings suggest that flow and perceived privacy risk play key mediating roles in the relationships between service consistency, service transparency, and loyalty intention, underscoring the

multifaceted nature of consumer experiences in omnichannel environments. Overall, the hypotheses testing results provide valuable insights into the factors influencing consumer behavior and intentions in omnichannel environments and highlight the importance of consistency, transparency, and immersive experiences in driving consumer trust and loyalty.

## 5.2. Limitations

While this study offers valuable insights into consumer behavior in banking omnichannel environments, several limitations should be considered. Firstly, the data were collected from Vietnamese bank customers, which may limit the generalizability of the findings to other industries or consumer segments. Additionally, the study relied on self-reported data, which may be subject to biases such as social desirability or recall errors. Furthermore, the cross-sectional nature of the data precludes causal inferences, and longitudinal studies are needed to establish the temporal relationships among the variables. Moreover, the study focused on a selected set of variables, and other factors such as brand reputation, website usability, and social influence were not included in the analysis. Future research could explore the role of these additional variables in shaping consumer behavior in omnichannel environments. Lastly, while efforts were made to control for potential confounding variables, the possibility of unmeasured variables influencing the relationships observed in the study cannot be ruled out. Overall, these limitations suggest avenues for future research to further elucidate the complexities of consumer behavior in omnichannel contexts.

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## Appendix

### Appendix 1: Measurement in this study

| Code | Items                                                                                                                                                          |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SC1  | The service images are consistent across all of the bank's channels.                                                                                           |
| SC2  | The levels of customer service are consistent across all of the bank's channels                                                                                |
| SC3  | The feelings of service are consistent across all of the bank's channels.                                                                                      |
| SC4  | All of the bank's channels have consistent performance in the timeliness of service                                                                            |
| ST1  | I am aware of available services of all of the bank's channels.                                                                                                |
| ST2  | I am familiar with available services of all of the bank's channels.                                                                                           |
| ST3  | I know how to utilize available services in all of the bank's channels.                                                                                        |
| ST4  | I know the differences of available services between all of the bank's channels                                                                                |
| F1   | Time seemed to fly when I use the services of the bank through different channels.                                                                             |
| F2   | I was enthusiastic while using services through different channels of the bank.                                                                                |
| F3   | I become immersed in the interaction with the bank through its different channels.                                                                             |
| PR1  | I am concerned that my personal data collected in different channels of the bank may be used for purposes other than the reason I provided the information for |
| PR2  | I am concerned about my personal privacy on these different channels.                                                                                          |
| PR3  | I am concerned about the fact that these channels might know/ track my behaviour and activities.                                                               |
| LI1  | I am willing to use services of the bank                                                                                                                       |
| LI2  | I would say positive things about the bank to other people.                                                                                                    |
| LI3  | I would recommend the bank to someone who seeks my advice.                                                                                                     |
| LI4  | I would encourage friends and relatives to do business with the bank.                                                                                          |