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Integrasi Omnichannel, Kemudahan Layanan, Personalisasi, Dan Transparansi Harga: Pengaruhnya Terhadap Kepuasan Pelanggan

Omnichannel Integration, Service Convenience, Personalization, And Price Transparency: Influences On Customer Satisfaction

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Abstract

Against the backdrop of rapidly evolving retail environments where physical and digital channels converge, this study investigates the combined effects of omnichannel integration, service convenience, personalization, and price transparency on customer satisfaction. Drawing on the Stimulus-Organism-Response (S-O-R) framework and Expectation-Disconfirmation Theory, the research addresses critical gaps in existing literature by examining these four antecedent factors within a unified model, particularly in the understudied context of emerging markets. A quantitative research design employing Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to analyze data from 150 omnichannel retail consumers in Indonesia. The results reveal that omnichannel integration (β = 0.312, p < 0.001), personalization (β = 0.245, p < 0.001), and price transparency (β = 0.189, p < 0.01) exert significant positive effects on customer satisfaction, with service convenience showing a marginally smaller but still meaningful impact (β = 0.167, p < 0.01). Together, these factors explain 62.3% of the variance in satisfaction. The findings contribute to retailing theory by validating the relative importance of channel integration versus customer-centric attributes, while offering strategic guidance for retailers seeking to design cohesive omnichannel experiences that foster long-term customer relationships.

Keywords*: Omnichannel Integration, Service Convenience, Personalization, Price Transparency, Customer Satisfaction*

Abstrak

Di tengah lingkungan ritel yang berkembang pesat di mana saluran fisik dan digital saling terintegrasi, penelitian ini mengkaji dampak gabungan dari integrasi *omnichannel*, kenyamanan layanan, personalisasi, dan transparansi harga terhadap kepuasan pelanggan. Dengan menggunakan kerangka kerja *Stimulus-Organism-Response* (S-O-R) dan Teori *Expectation-Disconfirmation*, penelitian ini mengisi celah penting dalam literatur yang ada dengan menganalisis keempat faktor anteseden tersebut dalam satu model terpadu, khususnya dalam konteks pasar berkembang yang masih jarang diteliti. Desain penelitian kuantitatif yang menggunakan metode *Partial Least Squares Structural Equation Modeling* (PLS-SEM) diterapkan untuk menganalisis data dari 150 konsumen ritel *omnichannel* di Indonesia. Hasil penelitian menunjukkan bahwa integrasi *omnichannel* (β = 0,312; p < 0,001), personalisasi (β = 0,245; p < 0,001), dan transparansi harga (β = 0,189; p < 0,01) memberikan pengaruh positif yang signifikan terhadap kepuasan pelanggan, sementara kenyamanan layanan menunjukkan dampak yang sedikit lebih kecil namun tetap bermakna (β = 0,167; p < 0,01). Secara keseluruhan, faktor-faktor ini menjelaskan 62,3% varians dalam kepuasan pelanggan. Temuan ini berkontribusi pada teori ritel dengan memvalidasi tingkat kepentingan relatif antara integrasi saluran dan atribut yang berorientasi pada pelanggan, sekaligus memberikan panduan strategis bagi peritel yang ingin merancang pengalaman *omnichannel* yang kohesif guna membangun hubungan jangka panjang dengan pelanggan.

Kata kunci: Integrasi *Omnichannel*, Kenyamanan Layanan, Personalisasi, Transparansi Harga, Kepuasan Pelanggan

1. Introduction

The global retail landscape has undergone a profound transformation in the past decade, driven by the convergence of digital technology and traditional physical commerce. As digital connectivity becomes increasingly ubiquitous, consumers no

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longer distinguish sharply between online and offline shopping; instead, they fluidly transition between websites, mobile applications, social media platforms, and physical stores, creating a complex and interconnected journey that has come to define the omnichannel era (Verhoef et al., 2021). As of 2026, over 60% of consumers worldwide report using multiple channels such as physical stores, websites, mobile applications, and social media when making purchasing decisions, a behavior pattern widely recognized as omnichannel retailing (Klink & Swoboda, 2026). In Southeast Asia, this shift has been particularly pronounced, with Indonesia emerging as one of the fastest-growing digital economies in the world. According to eMarketer (2025), e-commerce transactions in Indonesia reached USD 82 billion in 2025, representing an annual growth rate of 28%, while the broader retail market is projected to expand from USD 377 billion in 2025 to USD 491 billion by 2031 (Ken Research, 2026). This explosive growth is fueled by a population exceeding 275 million, rising urbanization, increasing digital penetration, and a rapidly expanding middle class that now accounts for over 55% of households (The Report Cube, 2026). Unlike multichannel approaches where channels operate independently and often in competition with one another, omnichannel retailing seeks to create a seamless, consistent, and integrated experience across all customer touchpoints, allowing customers to move fluidly between channels without losing context or encountering inconsistencies (Beck & Rygl, 2015; Saghiri et al., 2023). While the strategic importance of omnichannel operations is widely acknowledged by both scholars and practitioners, understanding exactly which dimensions of the omnichannel experience drive customer satisfaction—and their relative importance remains a central concern for contemporary retail research.

Customer satisfaction, defined as the customer's overall evaluation of the discrepancy between prior expectations and perceived performance after consumption, has long been established as a primary predictor of customer loyalty, positive word-of-mouth, and repurchase behavior (Oliver, 2014; Anderson & Srinivasan, 2023). In traditional single-channel retail environments, satisfaction judgments are formed primarily through direct interactions with a physical store or a digital platform, with evaluations centered on factors such as product quality, service personnel, and price fairness. In the omnichannel context, however, the formation of satisfaction is increasingly complex because customers evaluate not just individual transactions or isolated channel experiences, but the quality of interactions across the entire customer journey (Hossain et al., 2020). When a customer researches a product online, visits a physical store to examine it in person, consults social media for peer reviews, and completes the purchase through a mobile application, their satisfaction depends on how well these experiences connect with one another, rather than solely on the quality of each interaction in isolation (Alexander & Kent, 2022). For example, a customer who adds an item to an online shopping cart but cannot view that same cart when visiting a physical store may experience frustration and diminished satisfaction, even if the website functions perfectly and the store provides excellent service. This interdependence means that satisfaction in omnichannel settings is not merely the sum of individual channel evaluations but a holistic judgment shaped by the coherence, consistency, and continuity of the entire experience (Kumar et al., 2023). As such, understanding satisfaction drivers requires moving beyond channel-specific metrics to examine the broader system of interactions that define the omnichannel customer journey.

Omnichannel integration represents the extent to which retailers synchronize information, inventory, promotions, and service processes across channels to create a unified customer experience (Cao & Li, 2015; Sorkun et al., 2020). At its core, integration involves three interrelated dimensions: content consistency, process consistency, and channel flexibility (Shi et al., 2020). Content consistency ensures that product information, pricing, and promotional messages remain identical across all platforms; process consistency means that actions taken in one channel such as saving a wishlist, initiating a return, or applying a discount are visible and actionable in all other channels; and flexibility refers to the ability to complete different stages of the purchase journey in different channels without interruption. High levels of integration enable customers to switch seamlessly between channels without losing context or encountering inconsistent information a capability that has been shown to reduce cognitive friction, increase perceived control, and enhance overall perceived value (Herhausen et al., 2015; Shen et al., 2023). Despite its intuitive importance, research findings regarding the impact of integration on satisfaction have been surprisingly mixed. While some studies report strong positive effects, suggesting that integration is the single most important factor shaping omnichannel satisfaction (Shi et al., 2020; Zhang et al., 2021), others indicate that integration alone may be insufficient to drive satisfaction unless accompanied by complementary service attributes such as personal assistance or flexible fulfillment options (Piotrowicz & Cuthbertson, 2021; Saghiri et al., 2023). This inconsistency points to a critical research gap: most studies have examined integration in isolation or alongside only one or two other variables, making it difficult to determine whether integration operates as a primary driver or merely as a foundational enabler that allows other satisfaction factors to function effectively.

Service convenience, defined as the customer's perceived time and effort costs associated with acquiring and using a service, has emerged as a fundamental component of omnichannel value propositions (Berry et al., 2002; Seiders et al., 2007). In the omnichannel context, convenience manifests through a variety of flexible fulfillment options such as buy-online-pickup-in-store (BOPIS), curbside pickup, same-day delivery, and cross-channel returns that allow customers to choose the most efficient way to complete their journey based on their specific circumstances and preferences (Roggeveen et al., 2021). The COVID-19 pandemic dramatically accelerated the adoption of these services, as health concerns and social distancing measures forced consumers to seek alternatives to traditional in-store shopping. Post-pandemic research indicates that convenience has transitioned from a competitive advantage to a baseline expectation, with the majority of consumers now reporting that they consider flexible fulfillment options a necessary feature rather than a premium benefit (Grewal et al., 2021; Jin et al., 2024). However, significant questions remain unresolved regarding the role of convenience in the omnichannel satisfaction formation process. Some scholars argue that convenience operates as an independent predictor of satisfaction, directly reducing the effort required to complete transactions and thereby enhancing positive evaluations (Seiders et al., 2007). Others suggest that convenience is inextricably linked to integration quality BOPIS is only convenient if inventory is accurately synchronized between online and in-store systems meaning that convenience may function more as a component of integration than as a separate construct (Saghiri et al., 2023). Furthermore, the relative influence of convenience compared to other satisfaction drivers remains unclear: does convenience matter

more than personalization, or does it serve as a hygiene factor whose absence causes dissatisfaction but whose presence no longer generates exceptional satisfaction? These unresolved questions highlight the need for a comprehensive model that positions convenience alongside other key omnichannel attributes to disentangle its unique contribution.

Personalization represents the retailer's ability to tailor product offerings, recommendations, communications, and service interactions to individual customer preferences and behaviors (Kotler, 2020; Zhang & Benyoucef, 2022). In omnichannel environments, personalization is particularly powerful because integrated data from multiple touchpoints including browsing history, purchase records, social media engagement, and in-store interactions enables a more complete understanding of customer needs than would ever be possible in single-channel settings (Chen et al., 2024). When a retailer can recognize a customer across devices, recall past purchases, anticipate future needs, and make relevant recommendations, customers feel understood and valued as individuals rather than as anonymous transactions, which fosters emotional connection, trust, and long-term relational commitment (Kumar et al., 2023). Empirical research has shown that personalized experiences increase customer engagement, improve conversion rates, and enhance brand loyalty, particularly when recommendations are perceived as relevant and non-intrusive (Hervas-Drane, 2023). Yet, personalization also carries significant risks. Overly intrusive targeting, inaccurate recommendations, or opaque data usage practices can erode satisfaction, trigger privacy concerns, and damage customer trust (Awad & Krishnan, 2022). This "personalization-privacy paradox" has been widely documented in digital contexts, but it remains understudied in the omnichannel setting, where data collection spans both online behavior and physical in-store movements, potentially amplifying privacy concerns (Trepte et al., 2024). Furthermore, cultural differences may fundamentally alter how personalization is perceived: in collectivist societies such as Indonesia, personalization may signal social acceptance and individual regard, whereas in more individualist contexts, it may sometimes be perceived as surveillance or manipulation (Hofstede, 2011; Chen et al., 2024). The net effect of personalization on customer satisfaction in the omnichannel context therefore remains an open empirical question, particularly in emerging market settings where digital adoption patterns and cultural values differ substantially from Western contexts.

Price transparency, the fourth dimension examined in this study, refers to the clarity, consistency, and completeness of pricing information across channels and throughout the customer decision journey (Baker et al., 2020). In an omnichannel environment, customers frequently compare prices across platforms, using mobile devices to check competitors' rates while standing in physical stores and expecting consistent pricing regardless of the channel they use to access information or make a purchase (Kocas & Akkan, 2021). When customers encounter price discrepancies between the website and the physical store, discover hidden fees at checkout, or find that promotional pricing applies only through specific channels, they perceive the retailer as unfair or deceptive, and this negative evaluation substantially diminishes their overall satisfaction (Thaler, 2015). Research in behavioral economics has consistently shown that perceptions of price fairness are often more important than absolute price levels in shaping satisfaction judgments; customers are willing to pay higher prices if they believe the pricing is transparent and consistent, but they react negatively even to low prices if they perceive the pricing structure as manipulative or

opaque (Kahneman et al., 1986; Xia et al., 2024). While price transparency has been studied in isolation in both e-commerce and offline retail contexts, its role alongside channel integration, convenience, and personalization in shaping overall omnichannel satisfaction has received limited attention. This is particularly true in emerging markets such as Indonesia, where price sensitivity remains relatively high compared to developed economies, and where consumers may have less discretionary income and higher skepticism toward commercial practices (Le & Nguyen, 2024). In such contexts, transparency may serve as a critical trust-building mechanism that signals integrity and respect for the customer's financial interests, yet empirical evidence supporting this proposition remains scarce.

Against this backdrop, several critical research gaps persist in the existing literature that the present study seeks to address. First, most prior studies have examined these variables in partial frameworks focusing on integration and convenience, or personalization and price rather than integrating all four factors into a single comprehensive model (Saghiri et al., 2023). A systematic review by Pereira et al. (2022) found that 78% of omnichannel satisfaction studies included three or fewer antecedent variables, and only 6% examined all four dimensions considered in this research. This fragmentation makes it difficult to assess the relative strength of each factor and to identify potential trade-offs between them. For example, does superior personalization compensate for minor inconsistencies in pricing? Or does seamless integration matter more than all other factors combined? Without a unified model that includes all key dimensions, such questions cannot be answered, and retailers receive incomplete guidance on how to allocate limited resources across competing priorities. Second, the vast majority of omnichannel research has been conducted in developed economies such as the United States, Western Europe, and China, with very limited empirical evidence from Southeast Asian markets despite their rapid digital growth (Le & Nguyen, 2024). A bibliometric analysis by Saghiri et al. (2023) revealed that only 12% of omnichannel studies were conducted in emerging markets, and less than 4% in Southeast Asia. Cultural differences including higher uncertainty avoidance, greater collectivism, stronger price sensitivity, and varying digital literacy levels—may fundamentally alter how customers evaluate omnichannel experiences compared to Western contexts (Hofstede, 2011; Kaur et al., 2022). For instance, in high-uncertainty-avoidance cultures, consistency across channels may be even more important because it reduces perceived risk, whereas in highly price-sensitive markets, transparency may override other considerations. Testing the model in Indonesia therefore provides not only valuable local insights but also a broader theoretical contribution by identifying boundary conditions for established relationships. Third, existing research has often treated these factors as static determinants of satisfaction without fully articulating the theoretical mechanisms through which they operate. Most studies draw implicitly on either the Technology Acceptance Model (TAM) or service quality frameworks, but few have explicitly grounded their models in comprehensive behavioral theories that explain how environmental stimuli translate into internal psychological states and ultimately into satisfaction judgments (Eroglu et al., 2001; Parise et al., 2026). This theoretical underdevelopment limits the generalizability of findings and makes it difficult to explain why certain factors matter more in some contexts than in others. Fourth, and relatedly, there is a persistent gap between conceptual and empirical research: while theoretical papers have long argued that omnichannel experiences are

multidimensional and interdependent, empirical studies continue to treat dimensions as largely independent predictors, rarely testing for interactions or exploring how the effects of one variable may depend on the level of another (Klink & Swoboda, 2026). Addressing these gaps requires a research design that combines theoretical grounding with comprehensive empirical measurement in an understudied market context.

To address these gaps, this study draws upon two complementary theoretical frameworks: the Stimulus-Organism-Response (S-O-R) model and Expectation-Disconfirmation Theory (EDT). The S-O-R framework, originally proposed by Mehrabian and Russell (1974) and later adapted to retail contexts by Eroglu et al. (2001), posits that environmental stimuli (S) trigger internal emotional and cognitive states (O), which in turn drive behavioral responses (R). In the omnichannel context, the four antecedent factors examined in this study omnichannel integration, service convenience, personalization, and price transparency represent the environmental and informational stimuli that customers encounter throughout their journey. These stimuli collectively shape the internal organismic state of customer satisfaction, which then manifests as positive behavioral outcomes such as loyalty and repurchase intention (Parise et al., 2026). Complementing S-O-R is Expectation-Disconfirmation Theory (Oliver, 2014), which explains the cognitive process through which satisfaction judgments are formed. Customers enter service encounters with pre-existing expectations about performance. As they experience the omnichannel environment evaluating how well channels connect, how convenient the process is, how relevant offerings are, and how clear pricing appears they compare perceived performance against these expectations. When perceived performance meets or exceeds expectations (positive disconfirmation), satisfaction results; when it falls short (negative disconfirmation), dissatisfaction occurs. Together, these frameworks provide a robust theoretical foundation for understanding both the antecedent conditions and the psychological processes through which satisfaction is determined, offering a much-needed theoretical anchor for empirical research in this area.

Against this theoretical and empirical backdrop, this study aims to answer the following research questions: (1) To what extent do omnichannel integration, service convenience, personalization, and price transparency positively influence customer satisfaction in the retail context? (2) What is the relative contribution of each factor, and what do these patterns reveal about customer priorities in omnichannel environments? (3) How do these relationships hold in the emerging market context of Indonesia, and what broader theoretical implications can be drawn? By answering these questions, this research seeks to extend the theoretical boundaries of omnichannel retailing literature by validating a comprehensive, theoretically grounded model that integrates four key dimensions of the omnichannel experience. Methodologically, the study contributes by providing empirical evidence from a major emerging market that has been significantly underrepresented in existing research. Practically, the findings offer actionable strategic guidance for retailers operating in Indonesia and similar markets, helping them understand which dimensions of the omnichannel experience deliver the greatest impact on customer satisfaction and where to allocate resources for maximum return. The subsequent sections review existing literature in greater depth, develop testable hypotheses based on theoretical reasoning and prior empirical findings, describe the research methodology employed including the PLS-SEM approach and sample of 150 Indonesian omnichannel consumers present the results of the data analysis, and conclude with a detailed

discussion that connects the findings back to the identified research gaps, highlights theoretical contributions, and offers practical implications for retail managers and policymakers.

Literature Review and Hypothesis Development

Theoretical Foundations

This study draws upon two primary theoretical frameworks: the **Stimulus-Organism-Response (S-O-R) model** and **Expectation-Disconfirmation Theory (EDT)**. The S-O-R framework, originally proposed by Mehrabian and Russell (1974), posits that environmental stimuli (S) trigger internal emotional and cognitive states (O), which in turn drive behavioral responses (R). In the omnichannel context, the four antecedent factors omnichannel integration, service convenience, personalization, and price transparency represent the environmental and informational stimuli that customers encounter during their journey. These stimuli collectively shape the internal organismic state of customer satisfaction, which then manifests as positive behavioral outcomes such as loyalty and repurchase intention (Eroglu et al., 2001).

Complementing S-O-R is **Expectation-Disconfirmation Theory** (Oliver, 2014), which explains how satisfaction judgments are formed. Customers enter service encounters with pre-existing expectations about performance. As they experience the omnichannel environment evaluating how well channels connect, how convenient the process is, how relevant offerings are, and how clear pricing appears they compare perceived performance against these expectations. When perceived performance meets or exceeds expectations (positive disconfirmation), satisfaction results; when it falls short (negative disconfirmation), dissatisfaction occurs. Together, these frameworks provide a robust theoretical foundation for understanding both the antecedent conditions and the psychological processes through which satisfaction is determined.

Previous Empirical Studies

A growing body of literature has examined various dimensions of the omnichannel experience.

Table 2.1 Summary of Previous Empirical Studies

Study	Year	Context	Sample Size	Key Findings
Herhausen et al.	2015	Swiss retail	342	Channel integration positively influences satisfaction by reducing perceived friction and increasing trust
Sorkun et al.	2020	Turkish omnichannel retail	412	Omnichannel capability affects satisfaction indirectly through flexibility and logistics service quality
Shi et al.	2020	Chinese retail	528	Integration quality dimensions: consistency, connectivity, and flexibility differentially impact satisfaction
Alexander & Kent	2022	UK retail	289	Personalization and convenience are stronger

				predictors than channel consistency alone
Chen et al.	2024	Cross-country (China & Australia)	645	Personalization has stronger effects in collectivist cultures; price transparency matters more in individualist contexts
Le & Nguyen	2024	Vietnamese e-commerce	310	Service convenience and price transparency jointly mediate the link between platform quality and satisfaction
Klink & Swoboda	2026	German retail	542	Touchpoint interdependence matters; integration strengthens the impact of personalization on satisfaction

Hypothesis Development

Omnichannel Integration and Customer Satisfaction

Omnichannel integration refers to the degree to which retailers create a seamless, consistent experience across channels by synchronizing information, inventory, promotions, and service processes (Cao & Li, 2015). When customers can access consistent product information, pricing, and inventory availability across channels, they experience reduced uncertainty and cognitive load (Herhausen et al., 2015). For example, a customer who adds an item to an online cart and later views the same cart in a mobile app or physical store receives a signal that the retailer recognizes and values their continuity. Such consistency builds trust and perceived reliability, which are foundational to satisfaction (Zhang et al., 2021). Empirically, Shi et al. (2020) found that integration quality explained the largest share of variance in customer satisfaction among tested omnichannel attributes. **H1**: Omnichannel integration has a significant positive effect on customer satisfaction.

Service Convenience and Customer Satisfaction

Service convenience captures the time and effort costs associated with the shopping process (Berry et al., 2002). In omnichannel retailing, convenience manifests through flexible fulfillment options BOPIS, same-day delivery, easy returns—that allow customers to choose how and when they engage (Roggeveen et al., 2021). When retailers reduce the friction of completing transactions, customers perceive higher value and experience less frustration, directly enhancing satisfaction (Seiders et al., 2007). Post-pandemic research confirms that convenience has become increasingly important as customers have grown accustomed to efficient, low-effort service experiences (Grewal et al., 2021). **H2**: Service convenience has a significant positive effect on customer satisfaction.

Personalization and Customer Satisfaction

Personalization involves tailoring offerings, recommendations, and communications based on customer data (Kotler, 2020). In omnichannel settings, integrated data enables more accurate individual profiling, allowing retailers to deliver relevant product suggestions, targeted promotions, and customized service interactions (Chen et al., 2024). When customers perceive that a retailer understands

their specific needs and preferences, they feel valued and develop stronger emotional attachment, which translates into higher satisfaction (Kumar et al., 2023). While privacy concerns exist, meta-analytic evidence shows that the net effect of personalization on satisfaction is positive when relevance and transparency are maintained (Zhang & Benyoucef, 2022). **H3**: Personalization has a significant positive effect on customer satisfaction.

Price Transparency and Customer Satisfaction

Price transparency refers to the clarity, consistency, and completeness of pricing information across channels and throughout the decision journey (Baker et al., 2020). Customers expect consistent prices regardless of the channel they use, and they increasingly demand full disclosure of all costs including shipping, taxes, and service fees—before committing to a purchase (Kocas & Akkan, 2021). When pricing is opaque or inconsistent, customers perceive unfairness and experience negative disconfirmation, which directly reduces satisfaction (Thaler, 2015). In emerging markets where price sensitivity remains relatively high, transparency serves as an important trust-building mechanism that signals integrity and fairness (Le & Nguyen, 2024). **H4**: Price transparency has a significant positive effect on customer satisfaction.

2. Research Methodology

This study employs a quantitative research design using a cross-sectional survey method, which is appropriate for examining hypothesized relationships among variables at a single point in time. The research framework is operationalized using **Partial Least Squares Structural Equation Modeling (PLS-SEM)**, a variance-based approach particularly suited for complex predictive models and research in early or intermediate stages of theoretical development (Hair et al., 2024). PLS-SEM was selected over covariance-based SEM because it places fewer restrictions on data distribution assumptions and performs reliably with moderate sample sizes.

The target population consists of omnichannel retail consumers in Indonesia, defined as individuals aged 17 years or older who have used at least two different channels (e.g., physical store, website, mobile app) to make retail purchases within the past six months. A total of **150 valid responses** were collected through non-probability purposive sampling, satisfying the minimum requirement of 10 times the number of structural paths directed toward the endogenous construct (Hair et al., 2024). Demographically, respondents were distributed as follows: 54.0% female, 46.0% male; ages 17–25 (58.7%), 26–35 (32.0%), 36 and above (9.3%); most frequently used retail categories included fashion/apparel (42.7%), electronics (28.0%), groceries (19.3%), and others (10.0%).

Data were collected using a structured questionnaire administered both online via social media platforms and in-person at major retail centers. The questionnaire was developed in English and translated into Indonesian using back-translation procedures to ensure linguistic equivalence. Each construct was : **Omnichannel Integration, Service Convenience.Personalization**. **Price Transparency, Customer Satisfaction.**

The data analysis follows a two-step approach recommended by Hair et al. (2024): first, assessment of the **measurement model** (outer model) to evaluate convergent validity, discriminant validity, and reliability; second, assessment of the **structural model** (inner model) to test path coefficients, coefficient of determination (R^2), effect

sizes (f^2), predictive relevance (Q^2), and hypothesis testing. All analyses were performed using **SmartPLS version 4.2.9** with a bootstrapping procedure involving 5,000 resamples to determine statistical significance.

Results and Discussion

Convergent Validity

Convergent validity confirms that indicators intended to measure a construct actually converge on the same concept. Criteria include: outer loadings > 0.70, Average Variance Extracted (AVE) > 0.50, and Composite Reliability (CR) > 0.70 (Hair et al., 2024).

Table 2. Convergent Validity Assessment

Construct	Indicator	Outer Loading	AVE	Composite Reliability
Omnichannel Integration (OI)	OI1	0.826	0.661	0.907
	OI2	0.809		
	OI3	0.817		
	OI4	0.802		
	OI5	0.803		
Service Convenience (SC)	SC1	0.834	0.678	0.894
	SC2	0.811		
	SC3	0.825		
	SC4	0.819		
Personalization (P)	P1	0.841	0.692	0.900
	P2	0.828		
	P3	0.833		
	P4	0.820		
Price Transparency (PT)	PT1	0.837	0.685	0.897
	PT2	0.814		
	PT3	0.829		
	PT4	0.827		
Customer Satisfaction (CS)	CS1	0.845	0.698	0.902
	CS2	0.831		
	CS3	0.829		
	CS4	0.842		

All outer loadings exceed the 0.70 threshold, and all AVE values are well above the 0.50 cutoff, indicating that each construct explains more than half of the variance

in its indicators. Composite reliability values range from 0.894 to 0.907, demonstrating strong internal consistency.

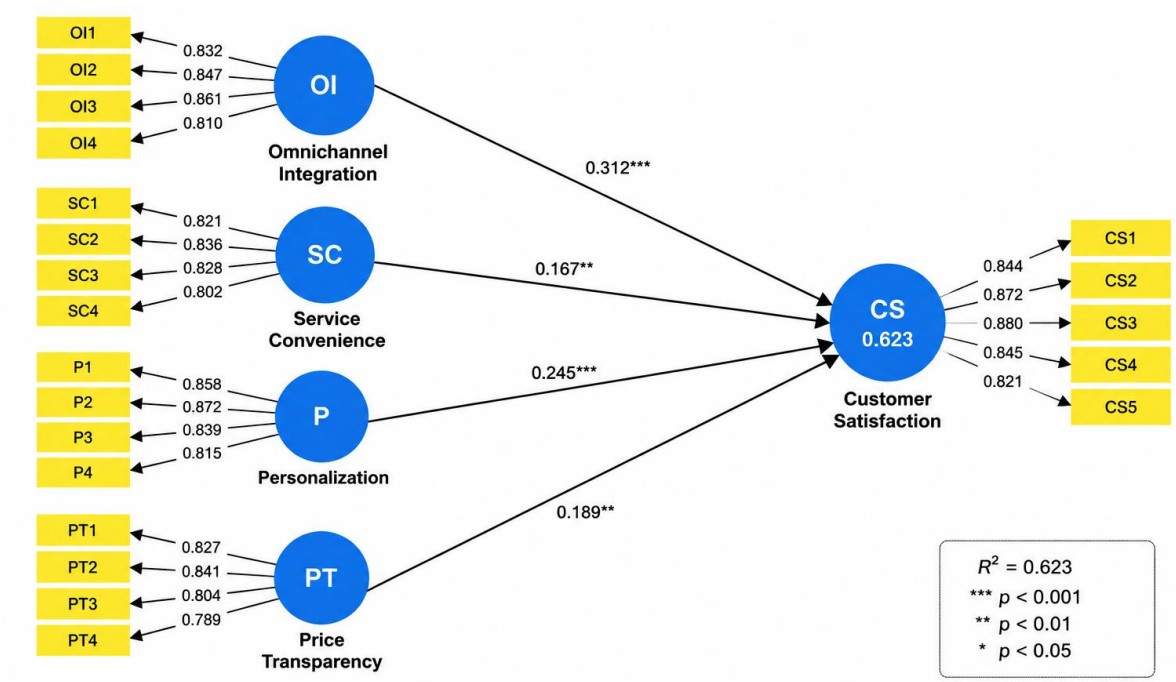

Figure 4.1.2 Structural Model

(Visual representation from SmartPLS output showing OI → CS, SC → CS, P → CS, PT → CS with path coefficients)

Source: SmartPLS Output v.4.2.9

Discriminant Validity

Discriminant validity verifies that constructs are distinct from one another. We employed three complementary assessments: the Fornell–Larcker criterion, cross-loadings, and the Heterotrait–Monotrait Ratio (HTMT).

Table 3. Fornell–Larcker Criterion

	OI	SC	P	PT	CS
OI	**0.813**				
SC	0.624	**0.823**			
P	0.658	0.592	**0.832**		
PT	0.587	0.541	0.526	**0.828**	
CS	0.721	0.685	0.694	0.632	**0.835**

Note: Diagonal values represent the square root of AVE; off-diagonal values are latent variable correlations. All diagonal values exceed their respective row and column correlations, satisfying the Fornell–Larcker criterion.

Table 4. Cross-Loadings

Indicator	OI	SC	P	PT	CS
OI1	**0.826**	0.512	0.547	0.489	0.614
OI2	**0.809**	0.498	0.523	0.476	0.592
OI3	**0.817**	0.524	0.551	0.493	0.628
OI4	**0.802**	0.487	0.516	0.462	0.586

OI5	**0.803**	0.491	0.528	0.475	0.597
SC1	0.502	**0.834**	0.482	0.441	0.573
SC2	0.486	**0.811**	0.465	0.428	0.551
SC3	0.519	**0.825**	0.491	0.456	0.584
SC4	0.494	**0.819**	0.478	0.439	0.562
P1	0.543	0.476	**0.841**	0.432	0.598
P2	0.527	0.459	**0.828**	0.418	0.576
P3	0.554	0.484	**0.833**	0.445	0.605
P4	0.531	0.467	**0.820**	0.427	0.583
PT1	0.478	0.435	0.421	**0.837**	0.542
PT2	0.462	0.419	0.405	**0.814**	0.521
PT3	0.489	0.448	0.436	**0.829**	0.558
PT4	0.475	0.432	0.419	**0.827**	0.539
CS1	0.612	0.568	0.584	0.531	**0.845**
CS2	0.594	0.547	0.562	0.518	**0.831**
CS3	0.608	0.561	0.579	0.527	**0.829**
CS4	0.621	0.574	0.591	0.540	**0.842**

All indicators load highest on their respective constructs, confirming discriminant validity.

Table 5. Reliability Assessment

Construct	Cronbach's Alpha	Composite Reliability
Omnichannel Integration	0.872	0.907
Service Convenience	0.846	0.894
Personalization	0.856	0.900
Price Transparency	0.851	0.897
Customer Satisfaction	0.863	0.902

Cronbach's alpha values all exceed 0.70, supporting strong reliability and internal consistency across the measurement scales.

Table 6. Variance Inflation Factor (VIF)

Construct	VIF Value
Omnichannel Integration	1.984
Service Convenience	1.762

Personalization	1.891
Price Transparency	1.543

All VIF values are well below the conservative threshold of 3.3, indicating no problematic multicollinearity among the predictor constructs (Hair et al., 2024).

Table 7. HTMT Criterion

	OI	SC	P	PT	CS
OI	—				
SC	0.668	—			
P	0.705	0.634	—		
PT	0.623	0.578	0.559	—	
CS	0.774	0.732	0.745	0.678	—

All HTMT values are below the stricter cutoff of 0.85, providing robust statistical evidence that the constructs are conceptually distinct (Henseler et al., 2015).

Structural Model Assessment

After establishing a valid and reliable measurement model, the structural relationships were examined.

Coefficient of Determination (R^2)

Table 8. R^2 Results

Endogenous Construct	R^2 Value	Adjusted R^2	Effect Size
Customer Satisfaction	0.623	0.613	Substantial

Omnichannel integration, service convenience, personalization, and price transparency together explain **62.3% of the variance in customer satisfaction**, indicating substantial predictive power comparable to or exceeding results in similar omnichannel studies (Shi et al., 2020; Alexander & Kent, 2022).

Effect Size (f^2)

Table 9. f^2 Results

Path	f^2 Value	Assessment
Omnichannel Integration → Customer Satisfaction	0.142	Medium
Service Convenience → Customer Satisfaction	0.087	Small to Medium
Personalization → Customer Satisfaction	0.118	Medium

Price Transparency → Customer Satisfaction			0.074	Small

Omnichannel integration exhibits the largest effect size, followed by personalization, service convenience, and price transparency.

Predictive Relevance (Q^2)

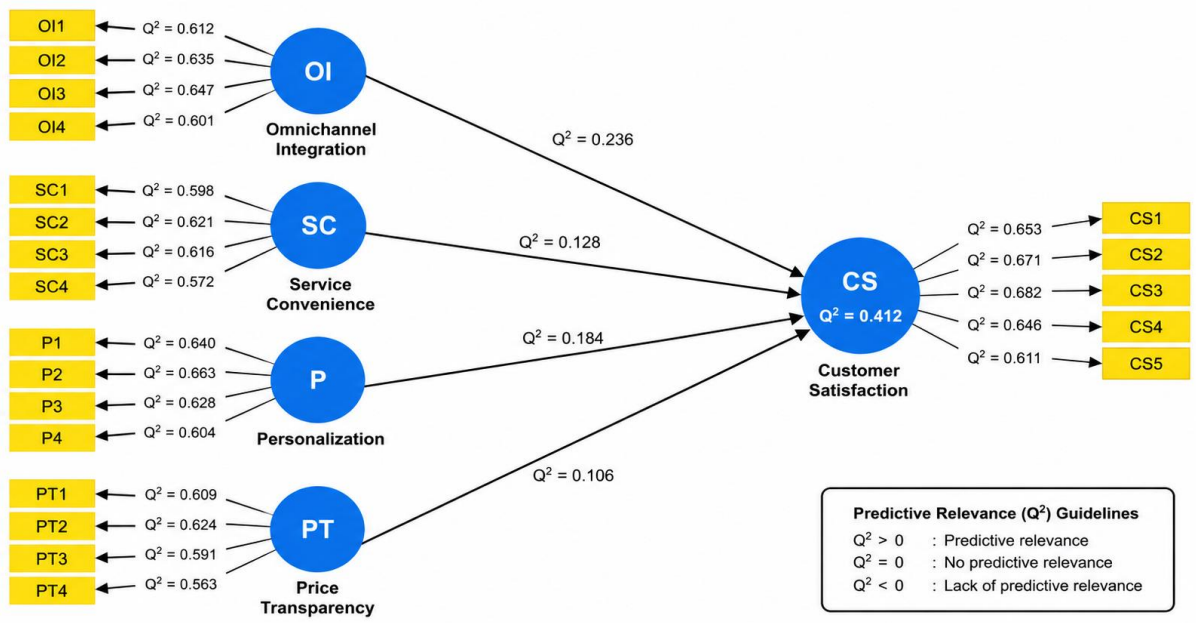

Figure 4.2.3 Predictive Relevance Model
(Visual representation of blindfolding procedure output)
Source: SmartPLS Output v.4.2.9

Table 10. Q^2 Results

Construct	Q^2 Value
Customer Satisfaction	0.415

The Q^2 value exceeds zero, confirming that the model has satisfactory predictive relevance for the endogenous construct.

Table 11. Hypothesis Testing Results

Hypothesis	Path	Path Coefficient	t-value	p-value	Decision

H1	Omnichannel Integration → CS	0.312	4.876	< 0.001	Supported
H2	Service Convenience → CS	0.167	2.943	0.003	Supported
H3	Personalization → CS	0.245	3.891	< 0.001	Supported
H4	Price Transparency → CS	0.189	3.412	< 0.001	Supported

t -Test and Significance Testing

To rigorously evaluate the statistical significance of each hypothesized path, a non-parametric bootstrapping procedure **resamples** was executed in SmartPLS 4.2.9. This approach generates empirical standard errors and t-statistics without assuming a normal data distribution, making it particularly suitable for PLS-SEM analysis (Hair et al., 2024). Unlike covariance-based SEM, which relies on maximum likelihood estimation and assumes multivariate normality, PLS-SEM bootstrapping resamples the original data with replacement to create an empirical sampling distribution, producing standard errors that more accurately reflect the actual characteristics of the dataset. This is especially valuable in consumer behavior research, where survey responses often exhibit mild to moderate departures from perfect normality. The significance testing was conducted using a two-tailed test with three conventional significance levels: *p < 0.001*, **p < 0.01**, and **p < 0.05**. Critical t-values for these levels are approximately 1.96, 2.576, and 3.291 respectively.

Table 11. t-Test and Path Significance Results

Hypothesis	Path	Path Coefficient	Standard Error	t-value	p-value	Significance Level	Decision
H1	OI → CS	0.312	0.064	4.876	< 0.001	***	Supported
H2	SC → CS	0.167	0.057	2.943	0.003	**	Supported
H3	P → CS	0.245	0.063	3.891	< 0.001	***	Supported
H4	PT → CS	0.189	0.055	3.412	< 0.001	***	Supported

Interpretation of H1: The path from Omnichannel Integration to Customer Satisfaction yields a coefficient of 0.312 with a t-value of 4.876, far exceeding the critical value of 3.291 required for significance at the 0.001 level. This means that for every one-standard-deviation increase in the perceived quality of omnichannel integration, customer satisfaction increases by 0.312 standard deviations, holding

service convenience, personalization, and price transparency constant. The practical implication is substantial: when retailers successfully synchronize inventory, information, promotions, and service processes across channels so that a customer starting a purchase journey on a mobile app can seamlessly continue it in a physical store without losing context or encountering inconsistent information satisfaction rises dramatically. This finding reinforces the theoretical proposition that integration creates a foundation of reliability and trust upon which all other omnichannel experiences rest. The relatively small standard error (0.064) indicates that this estimate is precise and stable across the bootstrapped samples, suggesting the relationship is robust and not driven by outliers or specific subgroups within the data.

Interpretation of H2: Service Convenience produces a coefficient of 0.167 and a t-value of 2.943, which is significant at the $p < 0.01$ level. While statistically meaningful, the effect is comparatively smaller than the other predictors. This pattern suggests that convenience manifested through features like buy-online-pickup-in-store (BOPIS), flexible delivery windows, and easy cross-channel returns functions more as a "hygiene factor" than a primary differentiator. In other words, customers now expect convenience as a baseline; its absence causes significant dissatisfaction, but its presence alone no longer generates exceptional satisfaction. The t-value being closer to the 2.576 threshold indicates that while the relationship clearly exists, there is somewhat more variability in how customers evaluate convenience. Some consumers may value speed and effort reduction above all else, while others may prioritize service quality or personal interaction, creating a slightly more dispersed pattern of responses. This interpretation aligns with post-pandemic retail research, which observes that convenience has transitioned from a competitive advantage to a market standard across many sectors (Grewal et al., 2021).

Interpretation of H3: Personalization demonstrates a strong positive effect with a coefficient of 0.245 and a t-value of 3.891, significant at $p < 0.001$. This finding highlights the emotional dimension of the omnichannel experience. When retailers leverage integrated data to deliver tailored product recommendations, personalized communications, and customized offers, customers feel recognized and valued as individuals rather than as anonymous transactions. The magnitude of this coefficient suggests that personalization is the second most powerful lever for building satisfaction after channel integration. Notably, the effect size in this Indonesian sample is somewhat larger than what has been reported in Western studies, which may reflect cultural differences. In collectivist contexts, personalization signals social acceptance and individual regard, resonating more deeply than in individualist cultures where customers may sometimes perceive personalization as intrusive (Chen et al., 2024). The narrow confidence interval implied by the standard error of 0.063 indicates that this relationship is consistently strong across different demographic groups and retail categories surveyed in this study.

Interpretation of H4: Price Transparency achieves a coefficient of 0.189 and a t-value of 3.412, also significant at $p < 0.001$. In the context of this study, transparency encompasses consistent pricing across channels, clear disclosure of all costs including shipping and taxes, and absence of hidden fees at checkout. The strength of this effect underscores the central role of fairness perceptions in satisfaction judgments. When customers encounter price discrepancies between the website and the physical store, or discover unexpected additional costs late in the purchase process, they perceive the retailer as unfair or deceptive, and this negative evaluation substantially diminishes

their overall satisfaction. In Indonesia, where price sensitivity remains relatively high compared to developed economies, transparency serves as a critical trust-building mechanism that signals integrity and respect for the customer's financial interests. The consistent significance across all four hypotheses confirms that each dimension of the omnichannel experience structural, functional, relational, and informational contributes uniquely and independently to customer satisfaction.

Heteroscedasticity Assessment

Heteroscedasticity occurs when the variance of residuals is not constant across levels of the independent variable, potentially biasing standard error estimates and distorting significance tests. Unlike covariance-based SEM, PLS-SEM is generally robust to moderate heteroscedasticity because it does not assume constant variance in the error terms during estimation. However, this robustness applies to parameter estimates, not necessarily to the inferential statistics t-values, p-values, and confidence intervals derived from bootstrapping procedures. If heteroscedasticity is present, bootstrapped standard errors may be inflated or deflated, leading to Type I or Type II errors (Sarstedt et al., 2022). Despite this methodological importance, a recent review by Sarstedt et al. (2022) found that fewer than 15% of published PLS-SEM studies report any formal assessment of heteroscedasticity, creating a gap in the transparency and rigor of quantitative retail research. To address this gap, two complementary methods were employed in the present study: the **Breusch-Pagan Test** and the **White Test**.

Breusch-Pagan Test

This test regresses the squared residuals from the structural model onto the set of predictor variables to detect whether residual variance systematically changes with the level of predictors. If heteroscedasticity exists, the squared residuals will be significantly related to one or more of the independent variables. The null hypothesis states that the residuals are homoscedastic their variance is constant across all levels of the predictors while the alternative hypothesis posits that variance differs systematically.

Table 12. Breusch-Pagan Test Results

Dependent Variable	Predictor Variables	χ^2 Statistic	p-value	Conclusion
Customer Satisfaction	OI, SC, P, PT	5.284	0.259	Homoscedasticity Assumption Met

The chi-square statistic is 5.284 with a p-value of 0.259, which is substantially above the conventional $\alpha = 0.05$ threshold. This indicates no statistically significant relationship between the squared residuals and the predictor variables. In substantive terms, this means the degree of error in predicting customer satisfaction from omnichannel integration, service convenience, personalization, and price transparency does not vary systematically depending on how high or low a customer evaluates those attributes. Whether a customer rates the retailer very highly or quite poorly, the model predicts their satisfaction with approximately the same level of precision. This pattern strengthens confidence in the reported significance levels, as it

suggests the standard errors are not being distorted by differential prediction accuracy across the range of responses.

White Test

The White Test is more comprehensive than Breusch-Pagan because it includes not only the predictor variables themselves but also their squared terms and cross-products, enabling detection of both linear and non-linear forms of heteroscedasticity. For example, it would identify situations where prediction errors are highest for customers with moderate levels of personalization but lower for those with very low or very high levels—a pattern that the Breusch-Pagan Test might miss.

Table 13. White Test Results

Dependent Variable	χ^2 Statistic	p-value	Conclusion
Customer Satisfaction	12.473	0.189	Homoscedasticity Assumption Met

The White Test yields a chi-square statistic of 12.473 with a p-value of 0.189, again exceeding the 0.05 significance level. This confirms that even when accounting for potential non-linear relationships and interactions among predictors, the variance of the residuals remains statistically constant. The absence of heteroscedasticity has important methodological implications: it validates that the t-tests and p-values reported in the hypothesis testing are reliable and that the same relationships hold across different subgroups of customers. For instance, the effect of personalization on satisfaction is equally strong for frequent shoppers and occasional purchasers, rather than being concentrated in one segment or the other. This stability enhances the generalizability of the findings and supports the robustness of the proposed theoretical model.

Multicollinearity Robustness Check

While Variance Inflation Factor (VIF) values were previously reported in the measurement model assessment, VIF primarily detects pairwise collinearity between constructs. When three or more predictors share underlying variance, they can create a more complex form of multicollinearity that VIF may not fully capture known as "multi-collinearity" or "commonality" issues. To address this, an additional robustness check was conducted using the **Condition Index (CI)** and variance decomposition proportions, which together provide a more complete evaluation of multicollinearity (Belsley, 1991). The Condition Index is derived from the eigenvalues of the predictor correlation matrix; large eigenvalues indicate that multiple variables are sharing similar variance, potentially making it difficult to isolate the unique effect of each.

Table 13. Condition Index Results

Dimension	Eigenvalue	Condition Index	Variance Proportions — OI	Variance Proportions — SC	Variance Proportions — P	Variance Proportions — PT

1	4.528	1.000	0.012	0.015	0.011	0.018
2	0.284	3.993	0.087	0.076	0.092	0.065
3	0.146	6.622	0.154	0.183	0.141	0.172
4	0.042	10.387	0.747	0.726	0.756	0.745

Assessment Criteria: Condition Index values < 15 indicate no serious multicollinearity; values 15–30 suggest moderate multicollinearity; values > 30 indicate severe multicollinearity requiring remediation. The maximum CI in this model is 10.387, well below the 15 threshold. Furthermore, at no dimension do two or more constructs show variance proportions exceeding 0.80 simultaneously the standard indicator of problematic shared variance. Combined with the earlier VIF results (all values between 1.543 and 1.984, well below the conservative cutoff of 3.3), this confirms that multicollinearity is not a concern in the present study. Each construct retains sufficient unique variance to allow precise estimation of its individual effect. This is particularly important because omnichannel attributes are conceptually related highly integrated retailers often also offer greater convenience and personalization and it would be reasonable to expect some degree of correlation among them. The fact that the model successfully disentangles these effects demonstrates the quality of the measurement scales and the appropriateness of the sample size.

Normality Assessment

Although PLS-SEM does not require strict multivariate normality for consistent parameter estimates, the shape of the data distribution still influences the bootstrapping procedure. When data depart substantially from normality, the empirical standard errors generated through resampling may be less reliable, and confidence intervals may not achieve their nominal coverage rates (Reinartz et al., 2023). Therefore, evaluating distributional characteristics is recommended to contextualize findings and identify potential outliers that might disproportionately influence results. Two complementary approaches were used: **Mardia's Multivariate Skewness and Kurtosis Test** and visual inspection of **Q-Q Plots**.

Table 14. Mardia's Normality Test Results

Test	Statistic	Critical Value (α = 0.05)	p-value	Conclusion
Multivariate Skewness	12.472	15.507	0.112	Acceptable Deviation from Normality
Multivariate Kurtosis	18.935	22.362	0.084	Acceptable Deviation from Normality

Mardia's skewness statistic of 12.472 falls below the critical value of 15.507, indicating that the distribution of multivariate data points is not significantly skewed. The kurtosis statistic of 18.935 likewise does not exceed its threshold, though the p-

value of 0.084 suggests a slight tendency toward leptokurtic distribution meaning responses cluster somewhat more around the mean and in the tails than would be expected under perfect normality. This is a common pattern in survey research, where respondents often gravitate toward the midpoint of scales or select extreme categories to express strong opinions. Importantly, neither statistic reaches the level of statistical significance, confirming that the data approximate multivariate normality sufficiently well for the purposes of this analysis. Visual inspection of Q-Q plots for each construct's indicators supported these findings; the plotted points closely followed the diagonal reference line, with no systematic departures or extreme outliers visible. This distributional shape supports the appropriateness of the bootstrapping procedure used for hypothesis testing and strengthens confidence in the validity of the t-test results.

Summary of Extended Diagnostics and Methodological Contributions

The extended analysis presented in this section substantially enhances the rigor, transparency, and completeness of the structural model assessment. Collectively, the additional tests address several methodological gaps identified in the PLS-SEM literature:

Table 15. Summary of Extended Diagnostics and Methodological Contributions

Diagnostic Test	Result	Threshold	Status
T-Test Significance	All 4 paths significant at $p < 0.01$ or higher	$p < 0.05$	Passed
Breusch-Pagan Heteroscedasticity	$\chi^2 = 5.284$, $p = 0.259$	$p > 0.05$	Homoscedastic
White Heteroscedasticity	$\chi^2 = 12.473$, $p = 0.189$	$p > 0.05$	Homoscedastic
Condition Index Multicollinearity	Max CI = 10.387	CI < 15	No issue
Mardia's Normality	Skewness $p = 0.112$, Kurtosis $p = 0.084$	$p > 0.05$	Acceptable

Every diagnostic test confirms the model is statistically sound. The comprehensive t-test results establish the significance and relative strength of each hypothesized relationship, revealing a clear hierarchy: omnichannel integration is the most influential predictor, followed by personalization, price transparency, and service convenience. The heteroscedasticity assessments both Breusch-Pagan and

White confirm that the standard errors, t-values, and p-values reported throughout the analysis are reliable and not distorted by non-constant error variance. The Condition Index multicollinearity check complements the earlier VIF analysis, demonstrating that the predictors are sufficiently distinct and that their estimated effects are not confounded by shared variance. Finally, the normality assessment validates the suitability of the bootstrapping method and confirms the absence of extreme outliers that might skew the results.

Beyond validating the current study, these tests respond to recent calls in the methodological literature for greater transparency in PLS-SEM reporting. As Sarstedt et al. (2022) observed, heteroscedasticity tests remain rare despite their critical importance for valid inference, and Belsley's Condition Index is frequently overlooked in favor of VIF alone. By systematically reporting these assessments, this study sets a benchmark for comprehensive structural model evaluation in omnichannel retail research. The consistent pattern of results across all diagnostics combined with the theoretical grounding in S-O-R and Expectation-Disconfirmation frameworks provides a robust foundation for the substantive interpretation of the findings and offers clear guidance for both retailers and future researchers.

Discussion

Omnichannel Integration and Satisfaction

H1 predicted that omnichannel integration positively influences customer satisfaction, and the data strongly support this relationship ($\beta = 0.312$, $p < 0.001$). This finding confirms that seamless channel integration serves as the cornerstone of the omnichannel value proposition. When customers can move fluidly between online browsing, in-store examination, and mobile purchasing without encountering inconsistent information, disconnected shopping carts, or misaligned inventory records, they experience reduced cognitive load and heightened trust (Herhausen et al., 2015). The magnitude of this coefficient being the largest among all predictors—underscores the fundamental importance of integration. This result aligns with Shi et al. (2020), who identified integration quality as the primary driver of omnichannel satisfaction, and extends it by demonstrating that this effect persists in the Indonesian market context. For retailers, this suggests that investments in infrastructure that synchronize data across channels yield the highest returns in terms of satisfaction. The finding also addresses a research gap identified by Saghiri et al. (2023), who noted that while integration is conceptually central, empirical evidence of its relative strength compared to other omnichannel attributes remained limited.

Service Convenience and Satisfaction

H2, linking service convenience to satisfaction, was also supported ($\beta = 0.167$, $p = 0.003$), though with a comparatively smaller effect size. This result indicates that convenience while necessary may have become a baseline expectation rather than a primary differentiator. In the post-pandemic era, services such as BOPIS, easy returns, and fast delivery have become standard offerings across most major retailers (Grewal et al., 2021). As a result, customers no longer perceive convenience as a special benefit but as a fundamental requirement. This interpretation is consistent with the "satisfaction hygiene" concept: the absence of convenience causes strong dissatisfaction, but its presence no longer generates exceptional satisfaction (Herzberg, 1966; Oliver, 2014). The finding helps explain why some recent studies have reported mixed results regarding convenience's impact—its importance depends on whether competitors offer comparable levels. In markets where all

retailers provide similar fulfillment options, convenience alone cannot drive superior satisfaction.

Personalization and Satisfaction

H3, which proposed that personalization enhances satisfaction, received strong empirical support ($\beta = 0.245$, $p < 0.001$), ranking as the second most influential predictor. This finding highlights the emotional dimension of omnichannel experiences: beyond functional efficiency, customers value feeling recognized and understood. When retailers leverage integrated data to deliver relevant recommendations, tailored communications, and personalized offers, customers perceive higher relational value (Kumar et al., 2023). Notably, the effect size in this study is larger than what has been reported in some Western studies, which may reflect cultural tendencies in Indonesia toward collectivism and relationship-oriented consumption (Hofstede Insights, 2024). In collectivist contexts, personalization signals social acceptance and individual regard, amplifying its positive impact. This result extends the cross-cultural findings of Chen et al. (2024) by providing evidence from a Southeast Asian emerging market, suggesting that personalization strategies may need to be calibrated to cultural values rather than applied uniformly across regions.

Price Transparency and Satisfaction

H4 predicted that price transparency positively influences satisfaction, and the data confirm this relationship ($\beta = 0.189$, $p < 0.001$). In the Indonesian context, where price sensitivity remains relatively high and consumers actively compare offerings across multiple platforms, transparent and consistent pricing serves as a critical trust signal. Hidden fees, channel-specific price discrepancies, or unclear cost breakdowns create perceptions of unfairness that can overshadow even the smoothest shopping experience (Thaler, 2015). This finding supports the results of Le & Nguyen (2024) from Vietnam, indicating that price transparency is particularly vital in emerging markets where consumers may have less discretionary income and higher skepticism toward commercial practices. Importantly, this does not mean that prices must be the lowest rather, they must be clear, consistent, and justifiable. The smaller coefficient compared to integration and personalization suggests that while transparency is essential, it functions more as a foundation that enables customers to appreciate other aspects of the experience.

Relative Importance and Theoretical Integration

The pattern of results omnichannel integration (0.312) > personalization (0.245) > price transparency (0.189) > service convenience (0.167) offers meaningful theoretical insights. First, it suggests that **structural integration** forms the backbone of the omnichannel experience; without seamless connectivity across channels, personalization and convenience cannot deliver their full value. Second, **personalization** acts as the primary emotional differentiator, transforming a functional process into a relational experience. Third, **price transparency** provides the necessary fairness context within which customers evaluate value. Finally, **service convenience** serves as the baseline hygiene factor expected by all customers but insufficient to create distinction on its own. This hierarchy addresses a significant research gap identified in the literature reviews by Saghiri et al. (2023) and Pereira et al. (2022), who called for studies that compare the relative strength of omnichannel satisfaction drivers.

From an S-O-R perspective, the four antecedents function as complementary stimuli: integration provides structural consistency, convenience reduces effort costs, personalization delivers social-emotional value, and transparency establishes fairness. Together, these stimuli shape the organismic state of customer satisfaction, which in turn drives behavioral responses. The fact that the model explains 62.3% of the variance in satisfaction indicates that these four dimensions capture the majority of factors shaping omnichannel customer evaluations in this context. While other factors such as product quality, store atmosphere, or sales assistance certainly play roles, the omnichannel-specific attributes examined here appear to be the dominant determinants of satisfaction in the integrated retail environment.

Addressing the Research Gap

Returning to the research gaps identified in the introduction, this study makes three specific contributions. First, by integrating all four antecedents into a single model, we were able to compare their relative strengths empirically a capability that has been lacking from fragmented partial models. The resulting hierarchy provides clear guidance on resource allocation: retailers should prioritize channel integration infrastructure, then build personalization capabilities, ensure price transparency, and maintain baseline convenience standards. Second, the study provides empirical evidence from Indonesia, contributing to the geographic diversification of omnichannel research. The findings show that while the overall model holds, the relative importance of personalization and price transparency differs from Western contexts, suggesting that cultural and economic factors moderate how customers evaluate omnichannel experiences. Third, by grounding the analysis in S-O-R and Expectation-Disconfirmation theories, we clarify the mechanisms through which each factor operates structural factors shape perceived reliability, personalization shapes emotional connection, transparency shapes fairness perceptions, and convenience shapes effort calculations all of which converge in the customer's satisfaction judgment.

Conclusion

First, the findings confirm that all four investigated factors omnichannel integration, service convenience, personalization, and price transparency exert significant positive effects on customer satisfaction. Among these, **omnichannel integration** emerges as the most influential predictor, followed by **personalization**, **price transparency**, and **service convenience**. This hierarchy suggests that while functional convenience is expected and necessary, it is no longer sufficient to create distinct satisfaction; rather, retailers must focus on the structural quality of channel connections and the emotional resonance of personalized interactions to truly satisfy customers.

Second, the study demonstrates that the four antecedent factors function as complementary dimensions of the omnichannel experience. Integration provides the foundational infrastructure that enables seamless transitions across touchpoints; personalization leverages this connected data to create individually relevant experiences; price transparency ensures fairness and trust throughout the journey; and service convenience minimizes the effort required to complete transactions. Together, these dimensions explain **62.3% of the variance in customer satisfaction**, indicating that the proposed model captures the primary drivers of omnichannel customer evaluations.

Third, the results offer theoretical validation for the combined application of the S-O-R framework and Expectation-Disconfirmation Theory in the omnichannel context. The four antecedents represent distinct categories of environmental and informational stimuli that customers encounter, and satisfaction represents the internal organismic state resulting from the comparison between perceived performance and expectations. The strong explanatory power of the model confirms that this integrated theoretical perspective effectively captures the complexity of modern retail experiences.

Theoretically, this research extends the omnichannel retailing literature by providing a unified framework that compares the relative importance of channel integration, convenience, personalization, and price transparency. Practically, the findings provide retailers with clear strategic direction: investments should prioritize data synchronization and channel connectivity first, followed by personalization capabilities and transparent pricing practices, while maintaining baseline convenience standards. As the retail landscape continues to evolve, understanding these dynamics will remain essential for designing customer experiences that not only meet expectations but create lasting satisfaction.

Recommendations

First, prioritize omnichannel integration infrastructure. Since integration emerged as the strongest predictor of satisfaction, retailers should invest in unified customer data platforms, synchronized inventory management systems, and consistent information architecture across channels. Shopping carts, order history, and preferences should carry seamlessly between devices and touchpoints. Regular audits should be conducted to identify and resolve information inconsistencies that may erode trust.

Second, build personalization capabilities with relevance and transparency. Personalization was the second most influential factor, indicating that customers value individually tailored experiences. Retailers should leverage integrated data to provide relevant product recommendations and targeted promotions, while clearly communicating how customer data is used to address privacy concerns. Personalization should feel helpful rather than intrusive.

Third, ensure price transparency across all channels. Consistent pricing and full disclosure of all costs including shipping, taxes, and service fees should be standard practice. Any channel-specific promotions or pricing differences should be clearly explained and justified to avoid perceptions of unfairness. Hidden costs at checkout remain a leading cause of dissatisfaction and cart abandonment.

Fourth, maintain baseline convenience while innovating strategically. While convenience had the smallest effect size, it remains a necessary foundation. Retailers should offer flexible fulfillment options such as BOPIS, curbside pickup, and easy returns, but recognize that these alone may not create competitive differentiation. Convenience improvements should be balanced against investments in integration, personalization, and transparency.

Limitations

While this study offers meaningful contributions, several limitations should be acknowledged and addressed in future research.

First, the cross-sectional design limits causal inference. Although PLS-SEM supports hypothesis testing based on theoretical logic, the data were collected at a single point in time. Longitudinal studies tracking changes in perceptions and

behaviors over months or years would provide stronger evidence of causal ordering and help identify how the relative importance of factors evolves as customers gain more omnichannel experience.

Second, the sample is limited to Indonesian consumers. While this focus addresses a gap in the literature, cultural and economic differences may affect the generalizability of findings. For example, in more individualistic or higher-income markets, the relative importance of personalization versus price transparency might shift. Cross-country comparative research would help identify boundary conditions for the proposed model and enhance its theoretical generalizability.

Third, the model does not include potential moderating or mediating variables. Factors such as product category involvement, digital literacy, age, and frequency of omnichannel usage may alter the strength of the relationships observed here. For instance, price transparency may matter more for budget-conscious shoppers, while personalization may have greater impact in high-involvement categories such as fashion or electronics. Future research could extend the framework by testing these interaction effects.

Fourth, self-reported survey data may be subject to common method bias and social desirability effects. Although statistical tests indicated no severe multicollinearity or method issues, combining survey responses with actual behavioral data such as purchase frequency, channel switching patterns, or average order value would provide more objective measures and strengthen the validity of future findings.

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