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## Elucidating and Developing the Quality of Systemic Integration Outcomes in Omnichannel Systems within the Banking Industry

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### ABSTRACT

The primary objective of the present study is to elucidate the quality of outcomes associated with the systemic integration of omnichannel systems within the banking industry. This research adopts an applied purpose and employs a descriptive-causal methodology, situated within the structural equation modeling framework. In terms of data characteristics, the study is quantitative in nature and examines four hypothesized relationships. The statistical population comprises customers and managers of both public and private banks in Iran; given the indefinite size of this population, a sample of 385 participants was determined. Data were collected using a researcher-developed questionnaire. For data analysis, SPSS 23 and LISREL 8.80 statistical software packages were utilized. The findings demonstrated that antecedent factors—namely, current channel chain analysis, customer knowledge, perceived ease of use, and technological infrastructure—exert a positive and statistically significant influence on the dimensions of channel integration quality, as well as on consequential outcomes including customer satisfaction, loyalty (encompassing intention to reuse and repurchase), and competitive advantage ( $\beta = 0.67$ ,  $\beta = 0.88$ ,  $\beta = 0.56$ , respectively). Consequently, organizations that strategically prioritize these antecedents (channel chain analysis, customer knowledge, ease of use, and technological infrastructure) can simultaneously enhance the dimensions of channel integration quality and attain favorable outcomes, such as heightened satisfaction, strengthened loyalty, and increased repurchase/reuse intention. Accordingly, this study proposes a comprehensive and integrated model delineating the interrelationships among these constructs. This model offers practical utility for enterprises and the national banking sector, enabling them to design strategies that more effectively align with organizational objectives. Ultimately, a thorough understanding and accurate implementation of omnichannel strategy constitute a pivotal determinant of success and long-term viability for financial institutions operating within today's highly competitive marketplace.

**KEYWORDS:** Omnichannel, Systemic Integration, Quality of Systemic Integration Outcomes, Banking Industry

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## 1. Introduction

Over the past decade, the banking industry has undergone a fundamental transformation driven by the proliferation of digital technologies and evolving consumer behaviors. The emergence of internet banking, mobile banking, and social media platforms has led customers to expect integrated, seamless, and personalized experiences when interacting with financial institutions (Lemon & Verhoef, 2016). In such a dynamic environment, banks are compelled to move beyond traditional multichannel approaches and embrace omnichannel banking strategies to sustain customer satisfaction while establishing enduring competitive advantages.

Contemporary service-oriented businesses and retail enterprises have similarly experienced profound structural shifts due to technological advancements. This transformation has replaced conventional single-channel customer interaction models with a novel paradigm emphasizing the integration of omnichannel touchpoints to deliver consistent and uninterrupted customer experiences across all engagement points. In this context, customers are no longer confined to a single interaction channel; rather, they simultaneously leverage multiple interconnected channels—including physical branches, websites, mobile applications, social media platforms, and contact centers. This phenomenon has fundamentally altered consumer engagement patterns with organizations and introduced new managerial challenges in the era of digital transformation (Reydet & Carsana, 2017). The rapid expansion of communication technologies, the widespread adoption of smartphones, and the growth of virtual platforms have necessitated that organizations develop diverse channels for sales, service delivery, and customer engagement (Shen et al., 2018). While such channel diversity presents opportunities to enhance customer satisfaction, the absence of informational and behavioral integration across channels may result in fragmented and inconsistent customer experiences. Consequently, the omnichannel strategy has emerged as a comprehensive framework for bridging physical and digital channels (Safeer et al., 2023). Within this framework, customers can attain a unified and continuous organizational experience, irrespective of the specific channel selected for interaction (Lazaris & Vrechopoulos, 2022).

The mechanism of "omnichannel integration" extends beyond the mere utilization of multiple communication platforms. In a systemic omnichannel approach, the emphasis lies on synergy among channels, continuity of customer experience, and informational coherence, enabling users to enjoy a uniform and uninterrupted experience at every touchpoint—whether branch, web portal, mobile application, or terminal (Nielsen et al., 2020).

Recent empirical studies, including those by Jalalzadeh et al. (2024), Ellahi et al. (2024), Asare (2022), Ailawadi and Farris (2017), Bell et al. (2018), and Gallino and Moreno (2019), demonstrate that data integration and cross-channel compatibility enhance operational efficiency and improve managerial decision-making. In parallel, research by De Keyser et al. (2020) and Gereá et al. (2021) underscores the significance of designing "customer journey maps" and effectively managing touchpoints within multi-platform environments. Within the domain of digital banking,

domestic studies such as Abbasi Nami and Asayesh (2021), Arefi and Kafi Mousavi (2022), and Roustana and Rahpima (2023) have indicated that the quality of omnichannel interactions exerts a direct influence on enhancing customer trust, satisfaction, and loyalty.

The increasing diversification of communication channels and the imperative for functional convergence among them have necessitated that banks comprehend and implement the omnichannel approach as a strategic priority in service delivery. This approach aims to provide customers with an integrated, consistent, and seamless experience by interconnecting all touchpoints within a cohesive and intelligent network (Taufique Hossain et al., 2017). From this perspective, the quality of channel integration is influenced not only by technological advancements but also constitutes a cornerstone of customer experience management in modern banking, as it can foster sustainable competitive advantage through improved information flows and cross-channel synergy (Berry & Carbone, 2007).

Despite the functional benefits of this approach in enhancing operational efficiency and customer satisfaction, a considerable proportion of banks continue to encounter substantial barriers in its effective implementation. These challenges encompass the complexity of information infrastructure, difficulties in data integration, security concerns, and even cultural resistance to altering traditional organizational structures (Jalalzadeh et al., 2024; Ellahi et al., 2024; Asare, 2022). Neglecting these impediments may result in fragmented and unstable customer experiences, which not only diminish satisfaction but also threaten the organization's strategic coherence. Therefore, in the era of digital transformation, the effective integration of traditional and digital channels is regarded as the backbone of banking service reinvention. Many banks remain in a transitional phase from "multichannel" to "omnichannel" models; insufficient understanding of the distinctions between these paradigms and inadequate execution of this transformation have hindered the full realization of customer experience quality as a critical determinant of competitiveness. This trajectory has rendered the banking industry more susceptible to change than any other sector. While banks have endeavored to establish diverse customer engagement pathways through the development of information technology infrastructure, internet banking systems, mobile banking applications, and digital services, success in this endeavor is contingent upon ensuring the quality of integration across channels. The lack of data coordination, redundant processes, and the absence of real-time information transfer between branches and online systems represent fundamental obstacles to achieving a cohesive customer experience in Iran's contemporary banking landscape. Consequently, assessing and enhancing the quality of omnichannel integration constitutes a prerequisite for attaining customer satisfaction, loyalty, and competitive advantage within this industry.

Notwithstanding the expansion of digital transformation initiatives in Iranian banks, domestic research concerning the mechanisms influencing the quality of systemic channel integration remains limited. Most existing studies have concentrated on technology acceptance models (e.g., TAM or UTAUT), with comparatively less attention devoted to the qualitative dimensions of integration and the antecedents influencing business outcomes (Jalalzadeh et al., 2024; Ellahi et

al., 2024; Asare, 2022; Taufique Hossain et al., 2017; Abbasi Nami & Asayesh, 2021). This gap underscores the necessity of examining a systemic model delineating the relationships among antecedents (inputs), integration quality (processing mechanisms), and performance outcomes (outputs) within Iran's banking sector.

Accordingly, systemic channel integration can enhance operational efficiency while simultaneously elevating customer satisfaction and loyalty, ultimately contributing to improved bank performance (Lovelock & Patterson, 2015). Nevertheless, the mechanisms through which these relationships manifest within the Iranian banking context, as well as the magnitude of influence exerted by key antecedents on integration quality and its outcomes, have received limited empirical investigation. Thus, the central research question addressed in this study is: What factors explain the quality of omnichannel integration in the banking industry, and how can this quality reinforce positive organizational outcomes?

In response, the present study aims to elucidate and enhance the quality of outcomes associated with systemic omnichannel integration in banking. Its key variables encompass antecedents (conceptualized as system inputs), quality dimensions (conceptualized as processing mechanisms), and performance outcomes (conceptualized as system outputs). Employing a descriptive-causal systemic approach and utilizing structural equation modeling, the research empirically examines the causal linkages among model components. It is anticipated that the findings will provide a theoretical foundation for advancing customer experience in digital banking and offer a practical framework for designing integrated channel systems within Iran's service industries.

## **2.Theoretical Foundations and Conceptual Model of the Research**

The objective of this section is to elucidate the theoretical foundations of the research variables and present the conceptual framework.

### **Omnichannel**

Omnichannel marketing represents the most advanced marketing approach, aiming to create a fully integrated systemic purchasing experience without discontinuity for customers across all internal and organizational touchpoints and channels (owned, paid, and earned) (Zhang et al., 2024). This approach places the customer at the center of interactions; its concern is not merely transactions, but rather the collection and analysis of customer behavioral data across channels to understand their needs and interactions (Gerea et al., 2021). Regarding the distinction between systemic omnichannel and multichannel marketing, it can be stated that in omnichannel, the focus is on the customer and delivering an integrated experience, whereas in multichannel marketing, the goal is to cover the maximum number of channels to reach a wider audience. In omnichannel marketing, channels are systemically integrated with one another and operate as a unit to create messages, whereas in multichannel marketing, channels operate independently and possess separate strategies. The benefits of omnichannel include: customer acquisition and retention, competitive advantage, growth in customer return rates, improved customer experience, and the delivery of consistent and integrated messages and offers across all channels. Omnichannel marketing assists

businesses in achieving greater success by creating an excellent user experience and fostering a strong connection between customers and the brand (Rooderkerk & K k, 2019).

A **System** is defined as a set of interdependent and interconnected elements and components that, by creating synergistic forces, regeneration, and establishing a feedback structure, seek to achieve specific goal(s) in an integrated and coordinated manner to engage in useful interaction. Thus, a system is a complex of role-playing elements that, through interdependence, form a single body, set, and constellation to perform specific tasks. A system implies cooperation and the facilitation of forces; therefore, a system signifies an integrated whole that is directed, energetic, and striving. Systems are a set of elements and components that are 1) interdependent and 2) interconnected, which 3) form a single constellation to 4) perform specific task(s), and 5) by creating synergistic forces, 6) cooperation, 7) regeneration, 8) establishing communication structures, feedback, and control in interaction with the environment and learning power, 9) determine their environment, 10) seek to achieve specific goal(s) in 11) functional coordination with one another to 12) form an integrated whole, 13) directed, 14) energetic, and 15) striving. This system possesses five prominent characteristics: 1) Dynamism (Being Dynamic), 2) Interactive Behaviors, 3) Cyclical Causal Behaviors, 4) Dynamic Mechanisms, and 5) Feedback Applications (Hamidizadeh, 2024).

### Conceptual Framework and Components of the Research Model

Subsequently, relying on previous research, the conceptual model of the study is formed based on a systemic approach comprising three main components: Inputs (Antecedents), the Processing Box, and Outputs (Outcomes). First, antecedents, as facilitating and foundational factors, provide the necessary groundwork for achieving integration among channels. Second, by processing the dimensions of channel integration quality on the inputs—which represent the degree of coherence, coordination, and uniform customer experience in using various channels—we arrive at the outputs, which are the performance results and consequences resulting from the successful implementation of the integrated system.

**A. Quality of Omnichannel Integration.** The dimensions of channel integration quality encompass various aspects that collectively influence customer experience and business success. Here, each of these dimensions is discussed in greater detail. Collectively, these quality dimensions contribute to creating an integrated, personalized, and satisfactory experience for customers, consequently leading to competitive advantage, cost reduction, increased loyalty (intention to use/repurchase), and increased satisfaction (Liu & Song, 2023).

- **Channel Structure:** Refers to the design and organization of a business's various communication channels. A strong and integrated channel structure ensures that customers can easily and without confusion switch between different channels. For example, a customer can begin a product search on the website, then contact the call center for more information, and finally complete their purchase in a physical store, without needing to provide repetitive information or encountering inconsistencies in data (Rooderkerk & K k, 2019).

- **Integrated Interaction:** Refers to the coordination and synergy between various interactions across different channels. This means that customer information and interaction history in one channel are accessible in other channels as well. For instance, if a customer creates a shopping cart on the website, they can view and complete it in their mobile application (Lazaris & Vrechopoulos, 2014).
- **Channel Chain Re-assessment:** Refers to the continuous evaluation and optimization of the channel chain according to customer needs and expectations. This means that businesses must continuously monitor the performance of their channels and, if necessary, implement changes in their structures, processes, and technologies to ensure the customer experience is optimal (Gallino & Moreno, 2019).
- **Customer Relationship Management (CRM) System:** This system refers to the collection, analysis, and interpretation of customer data across different channels. A robust CRM system helps businesses gain a better understanding of their customers, personalize their interactions, and provide better services (Ailawadi & Farris, 2017).

**B. Output of the Omnichannel System: Outcomes.** Omnichannel marketing is not merely a marketing strategy; rather, it is a comprehensive systemic approach to improving the entire business and creating stronger relationships with customers, which will entail expected outcomes as the system's outputs. In fact, this approach not only leads to increased sales and revenue but also aids in cost reduction, brand image improvement, and better decision-making (De Keyser et al., 2020). These outcomes are as follows:

- **Gaining Competitive Advantage:** Businesses that succeed in creating omnichannel integration can provide a better customer experience and, consequently, gain a significant competitive advantage over rivals (Gentl, 2016).
- **Cost Reduction:** Channel integration can lead to reduced operational costs. For example, through process automation and reduced need for human resources, customer support and marketing costs are decreased (Zhang et al., 2024).
- **Loyalty (Intention to Purchase/Reuse):** Customers with a positive purchasing experience in integrated channels are more inclined to repurchase from that business.
- **Satisfaction:** Channel integration leads to increased customer satisfaction, as customers can easily and without any issues access the information and services they require (Arefi & Kafi Mousavi, 2022).

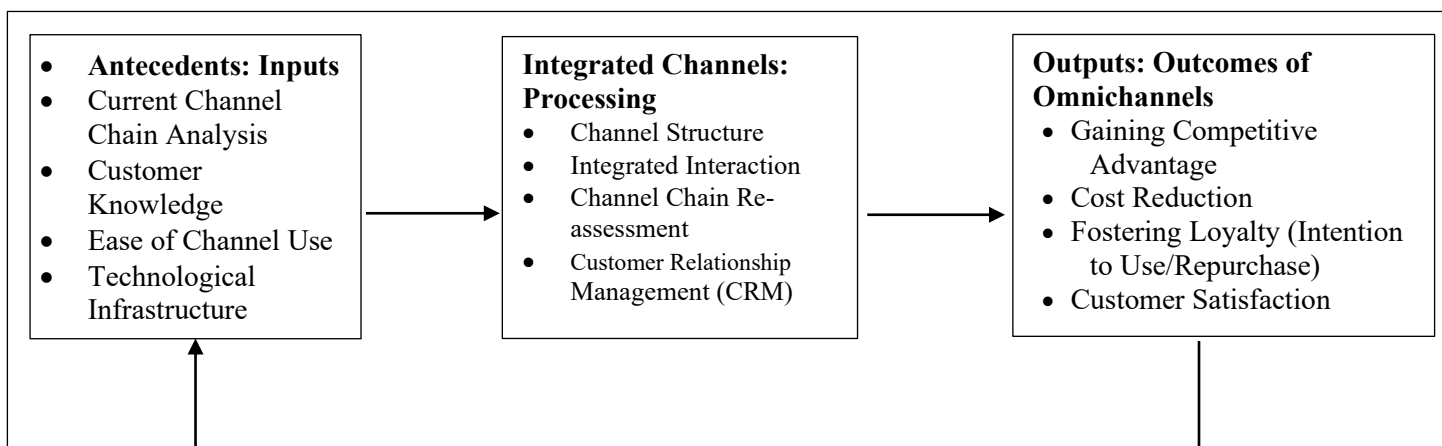
**C. Antecedents in Omnichannels.** Antecedents refer to the key factors and driving forces that, similar to system inputs, drive organizations toward implementing and utilizing an integrated omnichannel strategy. Recognizing these antecedents helps to better understand the rationale behind the importance of omnichannel marketing. Antecedents include (Verhoef et al., 2016):

- **Current Channel Chain Analysis:** Precise analysis of the current channel chain helps identify weaknesses and strengths in existing processes. This analysis allows businesses to understand which channels perform well and which require improvement.
- **Customer Knowledge:** Utilizing the knowledge repository of customers (needs, wants, tastes, preferences, expectations, and behaviors) helps businesses design their channels in a way that provides the best experience for customers.
- **Ease of Channel Use:** Channels that are easy and enjoyable to use are utilized more frequently and increase customer satisfaction.
- **Technological Infrastructure:** A strong and reliable technological infrastructure enables the systemic integration of channels and the delivery of integrated services (Ailawadi & Farris, 2017).

By reviewing the research background, factors influencing the quality of omnichannel integration were identified. In this research, those factors agreed upon by a greater number of researchers were utilized in examining their impact on the quality of omnichannel integration. In light of the theoretical foundations and research background, the conceptual model of the research is presented according to **Figure 1**.

In this model, antecedents are the independent input variables, integrated channels represent the processing and system output, and performance outcomes are the outputs; therefore, causal relationships exist among them. To achieve the research objectives and based on the research conceptual model, the research hypotheses are as follows:

1. The dimensions of quality of integrated omnichannels have a significant effect on outcomes (outputs).
2. Antecedents (inputs) have a significant effect on the dimensions of quality of integrated omnichannels (transformation box).
3. The outcomes of integrated omnichannels have a significant effect on antecedents.



**Figure 1.** Inputs: Systemic Approach of Antecedents, Processing: Integrated Channels, and Outputs: Outcomes of Omnichannels

### 3. Research Methodology

In terms of data type and nature, the present study is descriptive quantitative research, and with respect to its objective, it is applied in nature. Regarding data collection methods, the study employs a descriptive-causal and survey-based approach. To gather data, in addition to utilizing library resources such as books, journals, scientific reports, and dissertations, a questionnaire was also employed as the primary instrument. The research questionnaire was researcher-developed. To test the hypotheses and the research model, SPSS 23 and the structural equation modeling software LISREL 8.80 were utilized. The statistical population of the study comprised customers and managers of public and private banks in Iran. In accordance with the maximum variance assumption for an indefinite population, the minimum sample size was determined to be 385 participants. Convenience sampling was employed to obtain respondents' perspectives.

**Validity and Reliability of the Research.** To establish the validity of the questionnaire, expert opinions from faculty members in management disciplines were solicited. Following minor revisions based on their feedback, the questionnaire's content validity was confirmed. Additionally, Confirmatory Factor Analysis (CFA) was conducted to ensure construct validity of the questionnaire items. To assess the reliability of the research, Cronbach's alpha coefficient was calculated. For this purpose, 30 preliminary questionnaires were distributed, and as indicated in Table 2, the alpha coefficients exceeded 0.70, indicating that the measurement instrument possesses high reliability.

**Table 1.** Demographic Characteristics of Respondents

| Variable               | Levels            | Frequency  | Percentage (%) |
|------------------------|-------------------|------------|----------------|
| <b>Gender</b>          | Male              | 270        | 70.0           |
|                        | Female            | 115        | 30.0           |
|                        | <b>Total</b>      | <b>385</b> | <b>100.0</b>   |
| <b>Age</b>             | 20–30             | 57         | 14.8           |
|                        | 30–40             | 171        | 44.5           |
|                        | 40–50             | 121        | 31.5           |
|                        | Over 50           | 36         | 9.4            |
| <b>Education Level</b> | Bachelor's Degree | 157        | 40.7           |
|                        | Master's Degree   | 182        | 47.2           |
|                        | Doctoral Degree   | 46         | 12.0           |

**Table 2.** Cronbach's Alpha Coefficients for Research Variables

| Variable                                       | Dimensions             | Number of Items | Cronbach's Alpha |
|--|------------------------|-----------------|------------------|
| <b>Dimensions of Integration Quality Model</b> | Channel Structure      | 4               | 0.756            |
|  | Integrated Interaction | 5               | 0.764            |

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| Variable                                | Dimensions                            | Number of Items | Cronbach's Alpha |
|---|---------------------------------------|-----------------|------------------|
|   | Channel Chain Re-assessment           | 3               | 0.740            |
|   | Customer Relationship Management      | 4               | 0.770            |
| <b>Model Antecedents (Facilitators)</b> | Current Channel Chain Analysis        | 4               | 0.767            |
|   | Customer Knowledge                    | 4               | 0.745            |
|   | Ease of Channel Use                   | 4               | 0.781            |
|   | Technological Infrastructure          | 4               | 0.793            |
| <b>Model Outcomes</b>                   | Gaining Competitive Advantage         | 6               | 0.747            |
|   | Cost Reduction                        | 4               | 0.760            |
|   | Loyalty (Intention to Use/Repurchase) | 4               | 0.757            |
|   | Customer Satisfaction                 | 4               | 0.736            |

#### 4. Findings

##### Descriptive Statistics of Research Variables

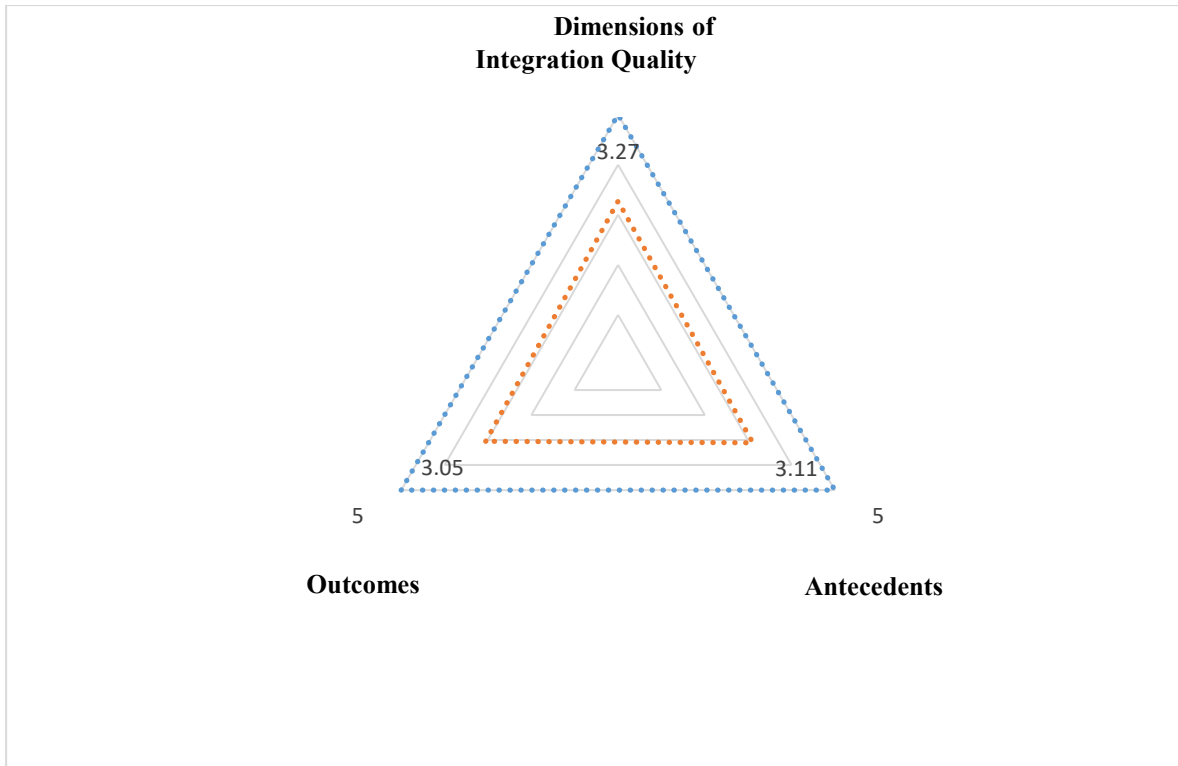
The descriptive statistics of the research variables are presented in Table 3.

**Table 3.** Central Tendency and Dispersion Indices of Research Variable Dimensions

| Statistic                | Dimensions of Integration Quality | Antecedents | Outcomes |
|--------------------------|-----------------------------------|-------------|----------|
| Mean                     | 3.2727                            | 3.1157      | 3.0592   |
| Mean Percentage          | 65.4%                             | 62.3%       | 61.1%    |
| Gap Percentage           | 34.6%                             | 37.7%       | 38.9%    |
| Coefficient of Variation | 31.4%                             | 29.3%       | 24.7%    |
| Standard Error of Mean   | 0.09889                           | 0.08785     | 0.08540  |
| Median                   | 3.2500                            | 3.1250      | 3.0000   |
| Mode                     | 2.88                              | 3.13        | 2.89     |
| Standard Deviation       | 1.02772                           | 0.91293     | 0.88749  |
| Variance                 | 1.056                             | 0.833       | 0.788    |
| Skewness                 | -0.216                            | -0.438      | -0.152   |
| Kurtosis                 | -0.589                            | -0.347      | -0.591   |
| Range                    | 4.00                              | 3.63        | 3.67     |
| Maximum                  | 5.00                              | 4.63        | 4.67     |
| Minimum                  | 1.00                              | 1.00        | 1.00     |
| Sum                      | 353.45                            | 336.50      | 330.39   |

The mean values for all three variables exceed the midpoint of the scale (3.00), indicating a relatively favorable status within the statistical population. The lowest coefficient of variation was observed for the outcomes variable (24.7%), suggesting a higher degree of consensus among respondents regarding this construct. Conversely, the dimensions of integration quality exhibited

the highest variability (31.4%), reflecting greater diversity in respondents' perceptions of this dimension. The negative skewness values across all variables indicate that the distribution of responses is slightly skewed toward higher values, implying that a majority of participants rated the constructs above the average level. Furthermore, the negative kurtosis values suggest a platykurtic distribution, characterized by relatively flatter peaks compared to a normal distribution. These descriptive findings provide preliminary support for the hypothesized relationships among antecedents, integration quality dimensions, and performance outcomes in the context of omnichannel banking in Iran.



**Figure (1).** Gap Between Current and Desired Mean Levels

Figure (1) illustrates the mean gap values (ranging from 34% to 38%), indicating a noticeable and improvable discrepancy between the current state and the desired (optimal) state across the research constructs.

Hypothesis Testing

To test the research hypotheses, the structural equation modeling (SEM) software LISREL was employed. The results are presented in Figures 2 and 3.

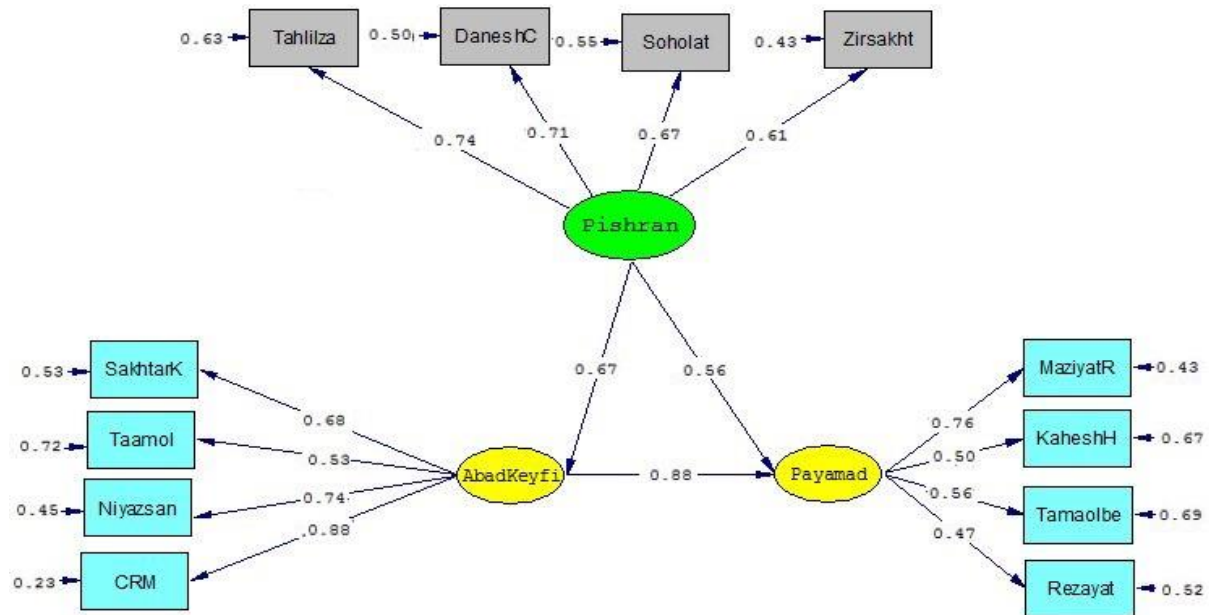


Figure (2). Overall Standardized Model of Research Hypotheses

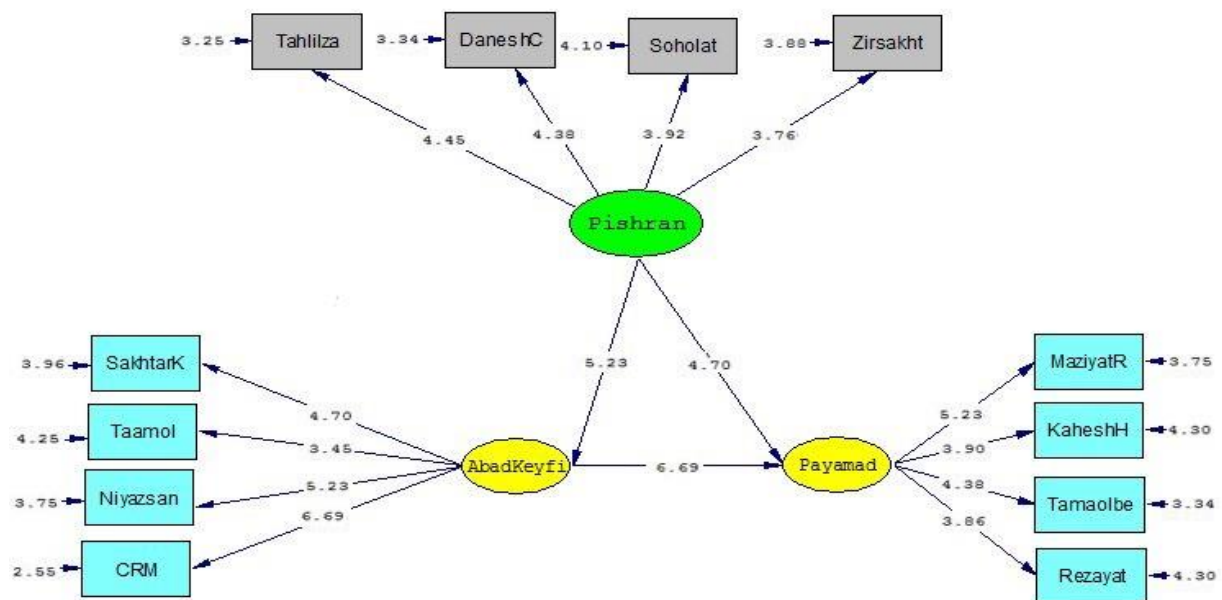


Figure (3). Overall Significance Model of Research Hypotheses

Based on the results presented in Table 4, given that the path coefficients exceed 0.30 and the reported t-statistic values are greater than 1.96, it can be concluded that the research hypotheses were supported.

**Table 4.** Results of Model Relationships

| Relationships                                  | Path Coefficients ( $\beta$ ) | t-statistic Value | Result                          |
|--|-------------------------------|-------------------|---------------------------------|
| Dimensions of Integrated Quality → Outcomes    | 0.88                          | 6.69              | Positive and Significant Effect |
| Antecedents → Dimensions of Integrated Quality | 0.67                          | 5.23              | Positive and Significant Effect |
| Outcomes → Antecedents                         | 0.56                          | 4.70              | Positive and Significant Effect |

**Goodness-of-Fit Tests.** When a model possesses adequate theoretical underpinning, the subsequent step involves examining the compatibility of this model with the data collected by the researcher. Based on the results presented in Table 5, the indices of the aforementioned model indicate a good model fit.

**Table 5.** Fit Indices of the Research Model

| Index | $\chi^2/df$ | P-value | RMSEA | RMR   | GFI  | AGFI | CFI  | NFI  | NNFI |
|-------|-------------|---------|-------|-------|------|------|------|------|------|
| Value | 1.17        | 0.000   | 0.042 | 0.034 | 0.93 | 0.92 | 0.90 | 0.90 | 0.91 |

## 5. Discussion and Conclusion

In today's digital world, customers, leveraging emerging technologies, hold heightened expectations for an integrated and seamless experience across all touchpoints with banking institutions. The inability of banks to deliver such an experience leads to diminished customer satisfaction, reduced market share, and inefficiencies in internal processes. The omnichannel strategy, which emphasizes the analysis of behavioral data and the establishment of coordination among channels, necessitates substantial investment in technological infrastructure, data management, and customer relationship management systems. Although the effective implementation of this approach is accompanied by challenges such as information system complexity and cultural resistance, its benefits—including enhanced customer loyalty, reduced operational costs, and increased customer retention rates—have been consistently validated, thereby transforming it into a competitive advantage for banks. The results of the structural equation modeling demonstrated that all three primary hypotheses were fully supported.

**First Research Hypothesis:** The dimensions of integrated omnichannel quality (channel structure, integrated interaction, channel chain re-assessment, and customer relationship management) exert a positive and significant effect on outcomes (gaining competitive advantage, cost reduction, loyalty [intention to use/repurchase], and satisfaction). The higher the quality of channel

integration, the greater the likelihood of achieving competitive advantage, cost reduction, customer loyalty (intention to use/repurchase), and customer satisfaction. This relationship is sufficiently robust that it cannot be attributed to chance or random variation. In summary, omnichannel integration constitutes a key strategy for businesses seeking to deliver excellent customer experiences, attain competitive advantage, and enhance profitability. By focusing on the dimensions of channel integration quality and utilizing customer relationship management systems, businesses can interact more effectively with their customers and address their needs more comprehensively.

**Second Research Hypothesis:** Antecedents (current channel chain analysis, customer knowledge, ease of channel use, and technological infrastructure) exert a positive and significant effect on the dimensions of integrated omnichannel quality (channel structure, integrated interaction, channel chain re-assessment, and customer relationship management). These antecedents function as key factors that assist businesses in designing and managing their channels in a manner that optimizes the customer experience. By concentrating on these antecedents, businesses can enhance the dimensions of channel integration quality and, consequently, gain competitive advantage, reduce costs, increase loyalty (intention to use/repurchase), and improve customer satisfaction. In essence, investment in these antecedents leads to significant improvements in the dimensions of channel integration quality.

**Third Research Hypothesis:** Antecedents (current channel chain analysis, customer knowledge, ease of channel use, and technological infrastructure) receive positive and significant influence from outcomes (gaining competitive advantage, cost reduction, loyalty [intention to use/repurchase], and satisfaction). Antecedents function as key factors that enable businesses to achieve the positive outcomes of channel integration, while the outcomes, in turn, provide feedback to these antecedents, serving a controlling function. By focusing on these antecedents, businesses can attain competitive advantage, reduce costs, increase loyalty (intention to use/repurchase), and enhance customer satisfaction. That is, investment in these antecedents significantly contributes to achieving the positive outcomes associated with channel integration.

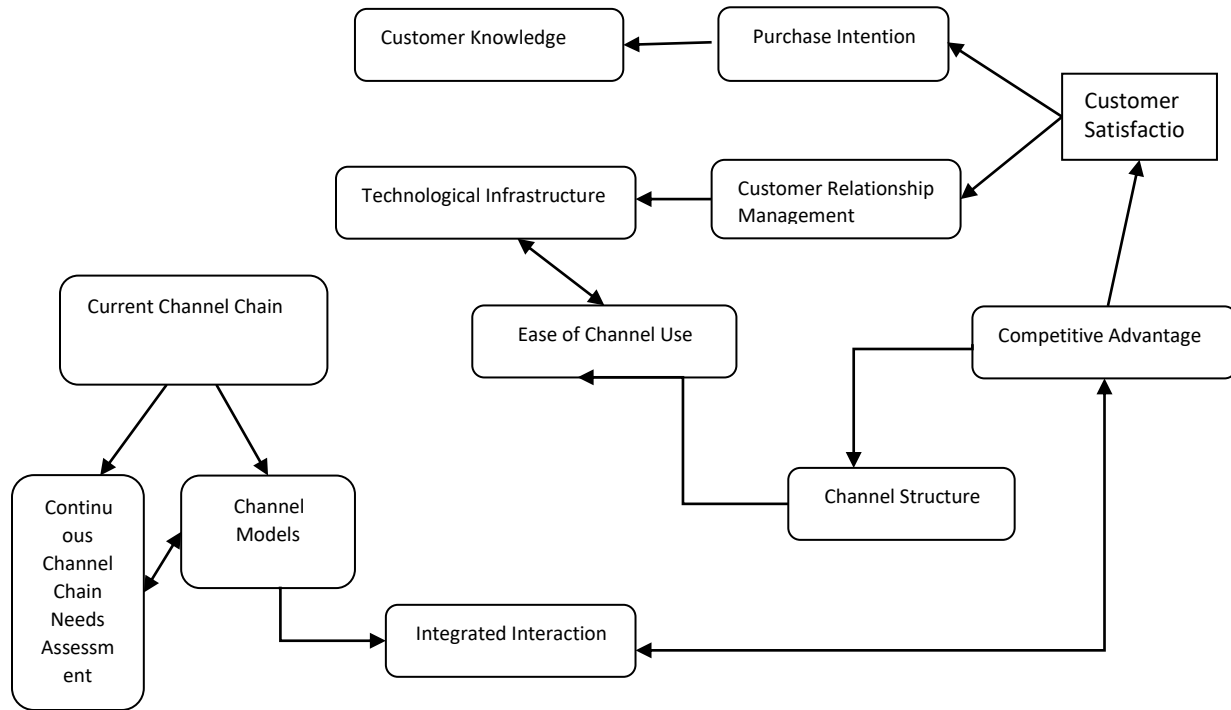
From a theoretical perspective, the findings of the present study are directly consistent with the results of prior research.

The study by Liu and Liu (2024), which examined the relationship between cross-channel consistency and brand loyalty in omnichannel retailing, demonstrated that informational and interactive compatibility across channels enhances trust and loyalty—a finding that was also confirmed within the banking industry context in the present research.

Similarly, the research by Wang and Jiang (2022) concerning omnichannel shopping experiences in China, which affirmed the impact of channel integration on customer retention, aligns with the findings of this study. Furthermore, the results of Lin et al. (2022), who identified customer commitment and adherence as outcomes of consistent interactions in multichannel environments, are reflected in the present research through the positive role of integrated interaction quality on loyalty. Among domestic studies, research by Abbasi Nami and Asayesh (2021) and Rousta and Rahpima (2023) have also reported correlations between multichannel service quality, positive

customer experience, and perceived value, findings that are consistent with the results of the structural equation modeling in this study.

Therefore, in addition to confirming the applicability of prior theoretical models within the context of Iran's digital banking sector, this research extends the international validity scope of these models by providing novel empirical evidence (Figure 1).



**Figure4.** Model of Interactions Among Research Model Variables

Overall, the research findings emphasize that the success of banks in today's digital and competitive environment is unattainable without a profound understanding of technology-driven antecedents and a focused commitment to the quality of channel integration. Adopting an omnichannel approach not only enhances operational efficiency but also elevates customer experience and strengthens the perceived value of the bank's brand. Consequently, effective integration among channels can serve as a sustainable competitive advantage within banks' digital transformation strategies. The implementation of systemic omnichannel marketing in the banking industry can yield diverse benefits, including improved customer experience, increased loyalty, and enhanced sales. However, achieving success in this domain necessitates attention to fundamental strategies (Table 6).

**Table 6.** Recommendations and Strategic Solutions

| No. | Recommendations                     | Explanation  | Strategy  | Example   |
|-----|-------------------------------------|--|---|---|
| 1   | <b>Focus on Customer-Centricity</b> | Banks must possess a deep understanding of their customers' needs, | Utilizing customer relationship management (CRM) data, market research, | Delivering personalized services based on customers' financial histories and goals, |

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| No. | Recommendations                           | Explanation  | Strategy   | Example  |
|-----|---|--|--|--|
|     |   | preferences, and behaviors. This information should be utilized in the design and implementation of all channels.  | and customer feedback for customer journey mapping and pathway navigation.   | such as offering loans tailored to specific needs or providing investment advisory services aligned with individual risk tolerance levels.   |
| 2   | <b>Channel Integration</b>                | All banking channels (branches, ATMs, websites, mobile applications) must operate in an integrated manner. Customers should be able to transition seamlessly between channels and enjoy a consistent experience.       | Employing a unified platform for managing all channels, delivering consistent information across channels, and enabling seamless data transfer between channels.   | Allowing customers to initiate a banking transaction via mobile applications and, if necessary, complete it at a bank branch without being required to resubmit information.   |
| 3   | <b>Delivery of Personalized Services</b>  | Banks should personalize their services according to each customer's needs and preferences: offering special promotions, targeted marketing messages, and support services tailored to specific customer requirements. | Leveraging customer data to provide product recommendations, send personalized emails, and offer specialized support services to high-value customers.   | Offering special discounts to customers who regularly utilize specific services, or providing complimentary financial advisory services to customers seeking investment opportunities.   |
| 4   | <b>Adoption of Emerging Technologies</b>  | Banks should utilize emerging technologies such as artificial intelligence, machine learning, blockchain, and the Internet of Things to enhance customer experience and improve operational efficiency.                | Deploying chatbots for customer inquiries, applying artificial intelligence for fraud detection, and utilizing blockchain to facilitate international transactions with reduced costs and increased speed.       | Employing artificial intelligence to deliver personalized financial advisory services, or leveraging blockchain technology to facilitate international money transfers with lower costs and greater speed.   |
| 5   | <b>Development of Mobile Applications</b> | Banking mobile applications should be user-friendly, secure, and feature-rich. Customers must be able to conveniently fulfill all their banking needs through mobile applications.                                     | Designing simple and engaging user interfaces, offering functionalities such as bill payment, fund transfer, account management, and loan applications, while ensuring high security standards for applications. | Enabling bill payments via barcode scanning, facilitating fund transfers using mobile phone numbers, and allowing loan applications without requiring branch visits.   |
| 6   | <b>Security and Privacy</b>               | Customer information security must be prioritized. Banks must ensure all necessary measures are implemented to protect customer data against cyber threats and misuse.   | Implementing robust security practices, encrypting data, employing two-factor authentication, and training staff in information security protocols.  | Utilizing facial recognition or fingerprint authentication for mobile application access, sending SMS verification codes for financial transactions, and providing regular customer education on protecting personal information against phishing and other cyber threats. |

### Elucidating and Developing the Quality of Systemic Integration Outcomes in Omnichannel Systems within the Banking Industry

| No. | Recommendations                       | Explanation   | Strategy  | Example   |
|-----|---------------------------------------|---|---|---|
| 7   | <b>Staff Training and Empowerment</b> | Bank employees must receive adequate training in omnichannel marketing and the use of emerging technologies. They should possess the capability to deliver high-quality services and resolve customer issues across all channels. | Providing regular training on banking products and services, emerging technologies, and communication skills, while empowering staff to make independent decisions and address customer concerns. | Training branch staff on the use of banking mobile applications, educating call center personnel on responding to customer inquiries via social media, and empowering employees to offer special discounts to dissatisfied customers. |

By adhering to the aforementioned recommendations and strategic solutions, banks can successfully implement systemic omnichannel marketing, thereby enhancing customer experience, strengthening loyalty, and achieving their commercial objectives.

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Authenticity of the texts, honesty and fidelity has been observed.

#### CONFLICT OF INTEREST

Author/s confirmed no conflict of interest.