



The Impact of Consumer Innovation Resistance Factors on Resistance Attitudes Toward Bank Smart Service Terminals

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Abstract. As artificial intelligence technology continues to penetrate and integrate with the banking industry, intelligent service terminals have become a crucial means for banks to achieve digital and intelligent transformation. At the same time, however, a significant "adoption gap" persists between rapid technological iteration and widespread user acceptance. Consumers' hesitation, distrust, and even explicit resistance have emerged as core bottlenecks constraining the realization of technology's potential. To systematically analyze this phenomenon, this study integrates the theory of status quo bias with innovation resistance theory to construct an explanatory model. It identifies five categories of barriers—usage, value, risk, tradition, and image—and analyzes how these barriers trigger user resistance and influence their willingness to adopt the technology. The study also explores the moderating role of the need for human interaction in this process. To address these practical issues, this research employs questionnaire surveys and structural equation modeling to reveal the causes, formation processes, and effects of user resistance toward bank intelligent service terminals. The findings provide a theoretical basis and practical guidance for optimizing terminal design, formulating differentiated promotion strategies, and building a human-machine collaborative service ecosystem within the banking industry.

Keywords: Smart Service Terminals; Innovation Resistance Factors; Resistance Attitude; Need for human interaction; Willingness to switch

1 Introduction

Since the 1960s, AI-driven fintech has been driving banking's intelligent transformation, and smart service terminals have evolved from mere query tools to full-fledged personalized service platforms^{[1] [2]}. Hence, the promotion of intelligent service terminals can reasonably be viewed as an active, deliberate initiative by banks to adapt to market and customer needs, which makes researching the barriers to user acceptance of such terminals of immense practical importance^[3]. Yet it is also well documented that user resistance arises from operational concerns, lack of emotional connection, and

algorithmic risks ^[4] ^[5]. Importantly, existing literature predominantly adopts an “acceptance” perspective, thus neglecting the causes and mechanisms of resistance in high-trust, high-involvement contexts ^[4] ^[5].

To address this gap, this study integrates status quo bias theory and innovation resistance theory to explore three research questions: (1) the causes of user resistance; (2) the antecedents, consequences, and mediating mechanisms of resistance attitude; and (3) the moderating role of the need for human interaction. The study aims to construct an integrated theoretical model to elucidate users’ psychological and behavioral resistance to bank smart service terminals.

2 Literature Review

2.1 Status Quo Bias Theory

Status Quo Bias Theory states that people have a natural tendency to stick with the status quo or select familiar options even when better alternatives are available ^[6] ^[7], and therefore this paper uses the theory to elegantly and systematically explain users’ “reluctance to change” regarding bank smart service terminals, as well as to identify the determinants of resistance. It is worth noting that existing literature has predominantly examined consumer resistance to traditional text-based fintech terminals ^[8], but there is a clear gap: few studies have explored the mechanisms of resistance or its effect on the willingness to switch to new types of terminals, such as intelligent voice terminals. Thus, building on Godefroid et al. (2023), this paper analyzes user resistance mechanisms from three well-defined dimensions: psychological commitment, cognitive biases, and rational estimation.

2.2 Innovation resistance theory

This study applies innovation resistance theory to analyze user resistance to bank smart service terminals ^[9]. The theory categorizes resistance into functional barriers (usage, value, risk) and psychological barriers (tradition, image) ^[20]. Identifying such barriers is essential to understanding adoption failures ^[21], making this framework suitable for explaining user resistance in this context ^[22].

2.3 Smart Service Terminals

Smart service terminals integrate artificial intelligence, natural language processing, big data analytics, and cloud computing to deliver convenient, efficient, and personalized financial services ^[10]. They are categorized into physical devices (e.g., smart ATMs, service robots) and software platforms (e.g., robo-advisors, virtual assistants) ^[11].

2.4 Resistance Attitude to Smart Service Terminals

Resistance attitude refers to a stable psychological tendency among users to oppose the use of and refuse to change their existing service habits, stemming from negative cognitive evaluations and emotional reactions toward banks' Smart Service Terminals [9][12].

2.5 Factors Contributing to Consumer Resistance to Innovation

Since adopters and resisters coexist during innovation diffusion, and since innovation necessarily involves changing familiar habits and hence incurs learning costs, it is natural to conclude that customer resistance to bank smart service terminals comes from long-standing service habits and changed interaction patterns.

Innovation resistance theory provides a framework for understanding such resistance, categorizing factors into functional barriers (usage, value, risk) and psychological barriers (tradition, image)^[9]. The five barriers are: (1) Usage barrier: incompatibility with existing habits, skills, and workflows; (2) Value barrier: lack of superior cost–performance ratio; (3) Risk barrier: uncertainty and potential negative consequences; (4) Tradition barrier: conflict with long-standing habits or cultural norms; (5) Image barrier: negative perceptions based on stereotypes or word-of-mouth^[9].

2.6 Need for human interaction

The need for human interaction is understood as the consumer's desire for human contact during the service experience^[13].

2.7 Willingness to switch to Smart Service Terminals

Willingness to switch to Smart Service Terminals refers to a user's behavioral tendency or plan to switch from traditional human-based services or existing service channels to using intelligent service terminals^[14].

3 Research Design

3.1 Research Model

Integrating status quo bias and innovation resistance theory, this model takes five resistance barriers as antecedents, Resistance Attitude to Smart Service Terminals as a mediator, need for human interaction as a moderator, and Willingness to switch to Smart Service Terminals as the outcome variable. as the outcome variable, as shown in Figure 1.

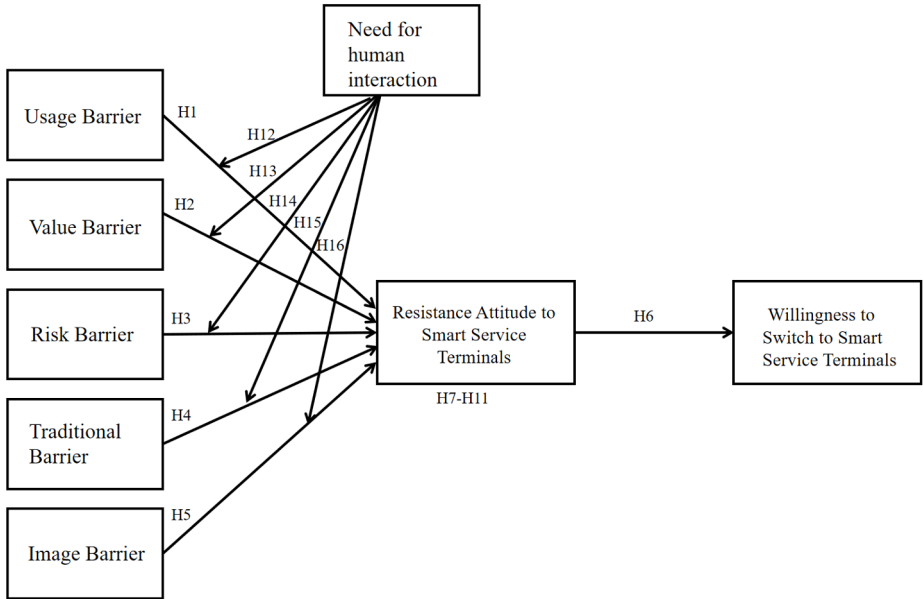


Fig. 1. Research model.

3.2 Research Hypotheses

Factors Contributing to Consumer Resistance to Innovation and Adverse Attitudes.

Based on status quo bias and innovation resistance theory, users face cognitive resistance when shifting from traditional counters to smart terminals [15]. The five barriers are: usage (conflict with existing practices)^[9], value (performance-to-price ratio)^[16], risk (uncertainty and side effects)^[16], tradition (conflict with habits/norms)^[9], and image (stereotyped negative perceptions)^[9]. Thus, five hypotheses are proposed:

H1: Usage barrier have a positive influence on resistance toward smart service terminals.

H2: Value barrier have a positive influence on resistance toward smart service terminals.

H3: Risk barrier have a positive influence on resistance toward smart service terminals.

H4: Tradition barrier have a positive influence on resistance toward smart service terminals.

H5: Image barrier have a positive influence on resistance toward smart service terminals.

The mediating role of Resistance Attitude to Smart Service Terminals.

User resistance is a key factor influencing the adoption of new technologies. In the context of fintech, user resistance to bank smart service terminals encompasses both

negative emotions toward the machines and rational judgments regarding their utility; together, these factors determine users' motivation to transition to smart devices [17]. Negative evaluations reduce users' investment in learning and operation [8], while resistance, combined with cognitive dimensions such as system usability, trust, and perceived value, collectively influences behavioral intention [18]. Consequently, this study proposes the following hypothesis:

H6: Users' Resistance Attitude to Smart Service Terminals has a negative impact on their willingness to switch to Smart Service Terminals.

Drawing on status quo bias theory and innovation resistance theory, this study proposes that resistance attitude serves as a key mediating mechanism linking five innovation barriers to users' willingness to switch to smart service terminals. Each barrier—usage, value, risk, tradition, and image—triggers or reinforces resistance attitude, which in turn suppresses switching intentions. Based on this, the following hypotheses are proposed:

H7: Resistance Attitude to Smart Service Terminals mediates the relationship between usage barrier and the willingness to switch to Smart Service Terminals.

H8: Resistance Attitude to Smart Service Terminals mediates the relationship between value barrier and the willingness to switch to Smart Service Terminals.

H9: Resistance Attitude to Smart Service Terminals mediates the relationship between risk barrier and the willingness to switch to Smart Service Terminals.

H10: Resistance Attitude to Smart Service Terminals mediates the relationship between Traditional barrier and the willingness to switch to Smart Service Terminals.

H11: Resistance Attitude to Smart Service Terminals mediates the relationship between image barrier and the willingness to switch to Smart Service Terminals.

The moderating role of Need for human interaction.

The need for human interaction reflects consumers' preference for human contact in service settings [13]. Individuals with high needs prefer human services and show lower acceptance of human-computer interaction, while those with low needs exhibit the opposite pattern [19]. This study proposes that the need for human interaction positively moderates the effects of the five innovation barriers on resistance attitude toward smart service terminals. Specifically:

H12: Need for human interaction enhances the effect of usage barrier on resistance attitude to smart service terminals.

H13: Need for human interaction enhances the effect of value barrier on resistance attitude to smart service terminals.

H14: Need for human interaction enhances the effect of risk barrier on resistance attitude to smart service terminals.

H15: Need for human interaction enhances the effect of traditional barrier on resistance attitude to smart service terminals.

H16: Need for human interaction enhances the effect of image barrier on resistance attitude to smart service terminals.

3.3 Operational Definition and Measurement

All constructs were measured using established scales with five-point Likert responses. Each construct was assessed with three or more items to ensure reliability and validity.

3.4 Sampling Design

The sample comprised consumers who had used a bank smart service terminal within the past six months. Surveys were distributed via Wenjuanxing on social media platforms, covering banks across the Guangdong–Hong Kong–Macao Greater Bay Area. Judgment sampling was applied, with usage within the past six months as the core criterion, while controlling for gender and age to enhance representativeness and inferential validity.

3.5 Data Analysis Methods

This study utilized SPSS and AMOS software to perform descriptive statistics and reliability and validity tests on the collected survey data, as well as exploratory factor analysis, analysis of variance (ANOVA), factor extraction, confirmatory factor analysis, structural equation modeling (SEM), and hypothesis testing.

4 Conclusion

This study integrates status quo bias theory and innovation resistance theory to develop a model in which five barriers (usage, value, risk, tradition, image) affect switching intentions via resistance attitude, moderated by need for human interaction. Practically, banks should optimize terminal design, enhance value perception, and tailor strategies to users' interaction needs. The findings offer a theoretical foundation for understanding user behavior, with future empirical work intended to validate the model and advance fintech adoption research.

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