The User Interface Design of Mobile Financial Applications Based on the E-S-QUAL Model

Chia-Yen Lin[1]*

[1] Department of Public Administration and Management, National University of Tainan, Country
33, Sec. 2, Shu-Lin St., West Central Dist., Tainan City 700301, Taiwan
*chiayen@mail.nutn.edu.tw

Abstract

The intersection of FinTech and user interface (UI) design plays a critical role in shaping consumer trust and promoting the adoption of financial technologies. Recent studies have shown that UI design significantly impacts customer trust, perceptions of data security, and the overall user experience in FinTech applications. Additionally, the rapid adoption of FinTech solutions, accelerated by the COVID-19 pandemic, highlights the growing need for seamless and secure digital banking alternatives. However, despite these advancements, there remains a gap in how financial institutions design UIs that effectively meet user expectations while addressing key service quality dimensions. This study addresses this gap by applying the E-S-QUAL model to mobile financial applications' UI design. The E-S-QUAL model, with its focus on efficiency, system availability, fulfilment, and privacy, provides a structured approach to improving user satisfaction and trust. By integrating these dimensions, this research aims to develop a user-centric UI that aligns more closely with the diverse needs and expectations of FinTech users. Findings from this study will offer valuable insights for FinTech developers, contributing to the design of more efficient and trustworthy mobile financial applications

Interface Design of Mobile Financial Apps

Design Concept of mobile financial App The financial industry is undergoing a transformation, driven by evolving customer expectations and rapid advancements in technology. While product innovation was once the focus, the emphasis has shifted towards service innovation, with a growing demand for personalized and engaging experiences. This shift is fuelled by the rise of social banking and the increasing integration of technology into daily life. To be competitive, financial companies must leverage emerging technologies like FinTech and artificial intelligence to enhance customer engagement and retention. This proposal explores the development of a mobile application that utilizes AI-powered features such as natural language processing, speech recognition, computer vision, and data analytics to create a more personalized and intuitive user experience. The framework and concept of application design include the main technology:

- Language: Includes Natural Language Processing (NLP) and Natural Language Understanding (NLU), which is applied in dialog systems and document automation.
- Speech: Includes speech recognition and speech synthesis, which is applied in scenarios such as voice assistants and intelligent customer service.
- Vision: Includes computer vision tasks such as image classification and object detection, applied in identity verification and risk control.
- Data Insights: Includes machine learning techniques such as predictive modelling, applied in risk assessment and customer behaviour analysis.
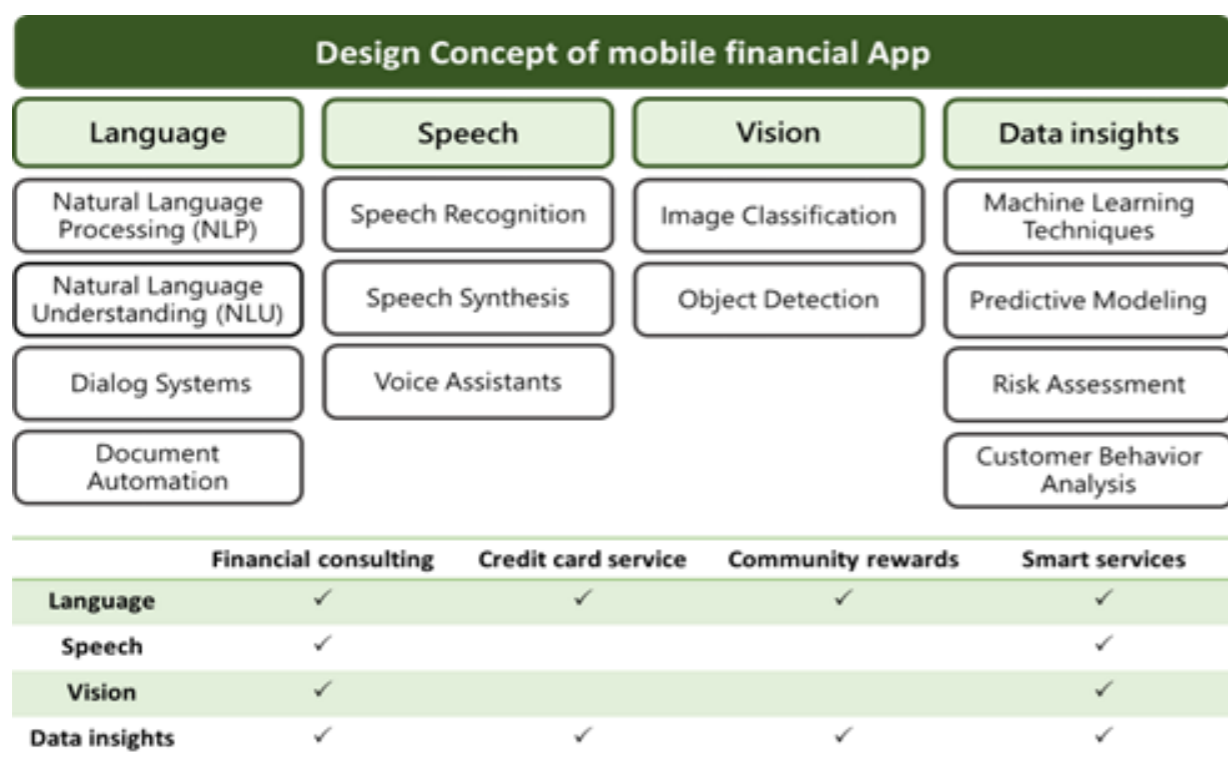

Figure 1 The design concept of mobile financial Apps

Interface of mobile financial App simulation According to the design concept, the main functions are detailed as follows:

- Financial consulting: By utilizing AI to gather data and employ advanced algorithms, we assess users' basic information and financial literacy to provide personalized investment portfolio recommendations.
- Credit card service: Utilizing natural identity recognition in conjunction with cloud technology, credit history analysis, personality trait analysis, and social network analysis, we enable intelligent fraud detection.
- Community rewards: Based on user consumption history and personal preferences, the system calculates personalized rewards or discounts for customers who engage in community activities (community management).
- Smart services: Through intelligent audio and visual recognition followed by analysis, we tailor personalized smart services based on user's emotions and personality traits.

By utilizing the techniques and employing Responsive Web Design (RWD), this study visually presents the user interface of the app, ensuring seamless browsing across all types of mobile devices.
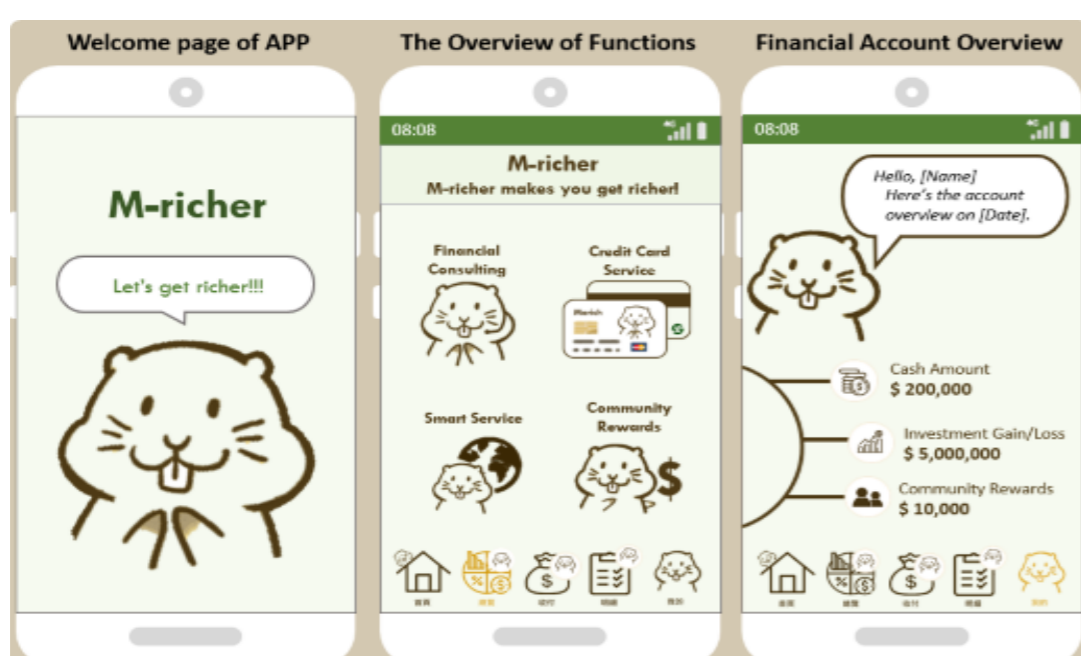

Figure 2 The simulated mobile financial Apps Interface

Framework Evaluation

To assess the user acceptance of the system, this study proposes that after the completion of programming, a survey should be conducted using a combination of the Technology Acceptance Model (TAM) and the E-S-QUAL e-service quality scale. This will enable the measurement of user attitudes and behavioral intentions toward the mobile smart finance application.
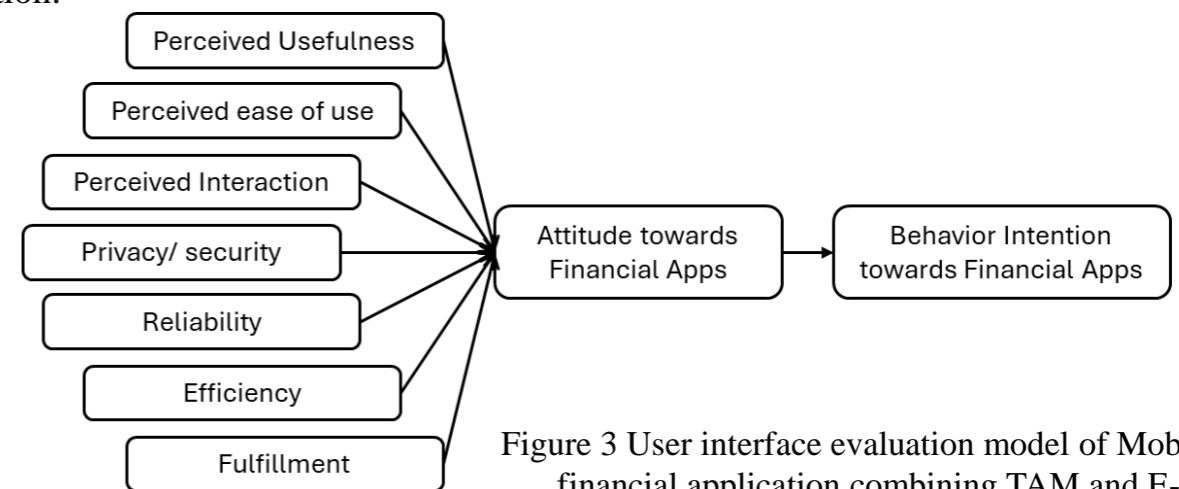

Figure 3 User interface evaluation model of Mobile financial application combining TAM and E-S-QUAL

Discussion

Mobile financial applications, driven by rapid technological advancements and prioritizing user interface design, are poised to deliver comprehensive service offerings, signifying a critical step in the evolution of financial services. Employing the combination of TAM model and E-S-QUAL model to evaluate consumer attitudes and guarantee strong user engagement with the application can lead to incremental gains in market share. This study presents a vital opportunity for the expansion of conventionally conservative financial entities. Our approach not only furnishes solutions for innovation in banking services but also amplifies the visibility and competitiveness of banks within the dynamic financial landscape.

Benefit for Financial Institute The concepts presented in this study are expected to yield the following outcomes for the development of financial enterprises:

- Expand customer base and enhance engagement: By increasing the number of users and fostering trust and loyalty towards financial institutions.
- Optimize operational efficiency and personalize services: A positive user experience with Mobile financial applications can stimulate online financial consumption behavior. It enhances the flexibility of financial service offerings to individual customer needs.
- Reinforce security and achieve mutual benefits: Financial institutions can leverage the design of Mobile financial applications to enhance the security and stability of intelligent financial management and investment transactions.

Benefit for Customers Customers are the cornerstone of any thriving enterprise. This research project anticipates delivering a transformative user experience for financial institution clientele and generating significant customer value in the following ways:

- Enhance efficiency and mitigate risks: Mobile finance applications can reduce the time customers spend searching for financial solutions and investment strategies.
- Promote informed decision-making and personalized planning: The security and stability of mobile finance applications can discourage impulsive decisions, leading to more profitable investment opportunities.
- Improve accessibility and encourage usage: The user-friendly interface design of mobile finance applications enhances convenience and lowers the barriers to entry for those seeking financial management assistance, ultimately increasing customer willingness to utilize the system.

This research positions the mobile finance application as an AI-powered intelligent assistant designed to enhance user engagement and expand market reach. By adopting a user-centric approach, it delivers personalized financial services and interface recommendations aligned with market needs. Pre-launch testing ensures optimal design and increased user adoption. This evaluation model will significantly benefit financial institutions promoting mobile finance platforms.

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