



# Technology adoption: A conjoint analysis of consumers' preference on future online banking services



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## ABSTRACT

The importance of service delivery technology and online service adoption and usage in the banking industry has received an increased discussion in the literature in recent years. Owing to the fact that Strong online banking services are important drivers for bank performance and customer service delivery; several studies have been carried out on online banking service adoption or acceptance where services are already deployed and on the factors that influence customers' adoption and use or intention to use those services. However, despite the increasing discussion in the literatures, no attempt has been made to look at consumers' preference in terms of future online banking service adoption. This study used conjoint analysis and stated preference methods with discrete choice model to analyze the technology adoption pattern regarding consumers' preference for potential future online banking services in the Nigerian banking industry. The result revealed that to increase efficiency and strengthen competitiveness, banks need to promote smart and practical branded services especially self-services at the same time promote a universal adoption of e-banking system services that add entertainment or extra convenience to customers such as ease of usage including digital wallet, real-time interaction (video banking), ATMs integrated with smart phones, website customization, biometric services, and digital currency. These services can contribute to an increasing adoption of online services.

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## 1. Introduction

In recent years, technology has increasingly been employed in the delivery of services. Service delivery technology has become the vital operating elements of today's organizations that help to reduce costs and improvements in the overall efficiency of operations [1–5]. Technology adoption is

the choice to acquire and use a new invention or innovation [6]. According to Saleem and Higuchi [7], technology adoption is the main reason why developing countries are yet to develop; old technology produces less quantity, low quality product, and short life span. They import old technology due to less investment in technology, risk aversion, additional cost of assessment, and lack of appropriate consultant for selection of appropriate technology. Innovation is not based on the R & D alone but in some firms, it is also by the use of innovative product and process from external source [8]. The paradigm shift in the way companies interact with their customers, this has been led by the proliferation of technology-based systems mostly in the service industry and the banking sector are the

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most beneficial. They are developing a number of alternate delivery channels with a view of attracting tech-savvy customers, improving customers' expectations and ensuring customer loyalty [9]. The need to explain the user acceptance of new technologies and the factors influencing the acceptance of such technologies is increasing [10]. According to Martins et al. [11], the banking sector has been using information services not only to run internal business activities and to promote products, but also to provide main services to their customers. Thus, the better use of the numerous new information services available in the market is a challenge facing this sector. Zhu and Chang [12] argued that Information technology is the basis of technology-based services; consumers may be concerned with the usefulness and ease of use of a technology-based service before they decide to avail themselves to try it. The effective service delivery on behavioral factors may result in customer loyalty (which impacts their future utilization of online banking patterns) in relation to other factors just like it has on customer satisfaction [13]. According to Martins et al. [11] adopters of internet and online banking have a lower propensity to leave the bank and have increased banking activity, acquire more products, and maintain higher asset and liability balances [5]. Information and communication technology, competition, deregulation and globalization have forced banks to balance the goals of outreach and sustainability, characterized based on the services the banks offer to customers across the globe and in numerous channels [13,14]. Banks have largely implemented service delivery technology as a way of augmenting the services traditionally provided by bank personnel, but technology-based services could only improve corporate performance through consumer acceptance or adoption [15,16,12]. Thus, online banking may be the instigator of this new environment and the prime mover in terms of providing the potential solution for bank's survival in the near future [17–20,4,21]. The level of online banking adoption will directly impact on the degree to which the customers are satisfied, in terms of the behavioral factors [19]. Several studies analyze online banking service adoption or acceptance when the services are already deployed and they look at factors that influence customers' adoption and use or intention to use those services. However, despite the increasing discussion about online banking service adoption in the literature, no attempt has been made to look at consumers' preference with regards to future online banking service adoption. Based on the aforementioned, the following questions have been raised by the current study: what is the preference structure and willingness of the customers to pay for the future online banking services? Which future online banking service promotion policy can be applied base on the heterogeneous population in Nigeria that can best promote an increasing online banking service adoption?

According to Miltgen et al. [22], the isolated impacts of technical, social, and risk factors on intention to accept IT have limit the ample view of different factors that organizations trying to succeed with IT implementation have to carefully address in order for the target users to accept the IT under investigation. Jayawardhena and Foley [23] identified the benefit of increasing the customer base, because using multiple distribution channels (branch networks, Internet banking, mobile banking, etc.) amplifies market coverage

by enabling different products to be targeted at different demographic segments. Thus, with a larger customer base, banks can profit from marketing and communication, with the possibility of mass customization for each group of clients, offering innovative products [11]. This is an important issue because many organizations today are saturated with mass automation and homogenized products and services. In the customer view, there is an increase in the autonomy with less dependency on the branch banking and consequently less time and effort. According to Miltgen et al. [22], IT is becoming increasingly complex and crucial for business operations, thus making the issue of acceptance an important challenge in IT implementation. Despite impressive advances in technology capabilities, the problem of underutilization of IT, especially for more radical technologies, is still present [24]. This study uses a conjoint based discrete choice modeling with stated preference data to construct the banking customers' behavior corresponding to the future online banking service preference of Nigerian banking customers. The objective of this research is to use the conjoint and discrete choice analysis to investigate and test the variance of consumers' behavior in relation to future online banking products/service preferences and willingness to pay – that will reveal a basic background for potential pricing themes and funding directions for banks in the developing countries with specific empirical analysis of the Nigeria banking industry. This study seek to help banks to understand the type and nature of future online banking services that can be well accepted by the customers and to create the right policies and actions to attract customers to use these services. In addition, it is in the banks' and clients' interest to direct their communication from bank branches to online channels in order to be more productive and cost-effective.

This paper is organized as follows: the next section presents the theoretical background and justification of attributes selection, followed by the research methodology. Then, we present the experimental design and data collection, followed by the empirical analysis and findings. Finally, the interpretation of the findings and both theoretical and practical implications are described. This paper concludes by presenting the research limitations and proposing avenues for future research.

## 2. Literature review

### 2.1. Adoption models

The growth of information services and IT acceptance and use has been studied using various models and varied conclusions have been drawn from such studies that offer new insights at both the individual and organizational levels with focus on a country or a set of countries [15,25,10]. Each of the several models that have been proposed in the literature has the same dependent variable, use or intention to use [11], but with various antecedents to understand acceptance of technology. Technology acceptances are information service theories that model how users come to accept and use a specific technology. These theories suggest that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it. Many authors have studied different aspects of

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