



Journal of Liberal Arts and Humanities (JLAH)  
Issue: Vol. 3; No. 9; September 2022 (pp. 27-37)  
ISSN 2690-070X (Print) 2690-0718 (Online)  
Website: www.jlahnet.com  
E-mail: editor@jlahnet.com  
Doi:10.48150/jlah.v3no9.2022.a3

## **Is Banking the next Blockbuster?** *An Empirical Study of the Impact of Disruptive Technology in Banking*

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### **Abstract**

Why are there so many tech startups and mobile apps, as well as a wider profit gap between top-performing businesses and those struggling at the bottom? Disruptive technologies played a crucial role in accelerating digital trends and consumer shifts that existed before the pandemic (Bradley et al., 2020).

Netflix's disruption of Blockbuster is used to show the documented empirical research on the theoretical definition and conceptual framework for disruptive technologies. The incumbent "Blockbuster" never saw Netflix as a threat until the at-home-movie viewing market was disrupted. COVID-19 caused havoc affecting investments, businesses, and consumers for years to come. While digitalization moved faster, traditional systems are now being reconsidered to better meet growing social and environmental needs.(Assink, 2006; Manyika et al., 2013).

As a result of the moderating effect of COVID-19 on consumers' perceived utility of technology, this article describes the relationships between disruptive technology, consumer adoption, and firm-level outcomes. This understanding may be limited to what makes consumers adopt disruptive technology in financial services; however, we will describe the theoretical framework that helps in the development of propositions to guide future research.

Keywords: disruptive technology, digital transformation, COVID-19, consumers, displaced incumbent, adoption, mobile banking, traditional banking, and financial services.

### **1. Introduction**

Digitization is a global megatrend exemplified through cases such as Netflix, Kodak, Airbnb, Google, Facebook, Amazon, and Nokia (Gans, 2016), and more businesses face disruptive innovative challenges and opportunities. The COVID-19 pandemic had far-reaching social and economic implications. Currently, in 2022, COVID-19 deaths have stabilized, but the world economy is still feeling the aftershocks of global supply chain issues and rising gas prices, with threats of a U.S. recession as interest rates rise (Manyika et al., 2013a).

The pandemic's social and economic effects have prompted numerous consumer behavior studies. Online tools (mobile banking, shopping, and streaming) have become more popular than ever (Munoz-Leiva et al., 2017; Tao Zhou & Zhang, 2010). A gap we have identified in recent literature is understanding the future of traditional banking. Do we see traditional banking as the next Blockbuster, or will better banking models prevent history from repeating itself? Another gap we have identified is the role that business models play in forecasting disruption and preparing for it. In this dynamic world, there is no rulebook for creating business models or responding to competition, margins, or long-term survival (Baden-Fuller & Haefliger, 2013). Can investing in technology innovation help established companies fend off new market entrants? Where is the consumer included in the business model when a company implements innovative technology and retention programs to prevent them from switching or going to a competitor? This is yet another gap in disruptive technology literature, as scholars focus on the individual firm and how it reacts to disruptive technology or disruptive tactics(Krasonikolakis et al., 2020). COVID-19 restrictions allowed fintech to target consumers who wanted faster, fee-free service. As consumers became more familiar with mobile technology, visiting their local bank was an afterthought. Therefore, is traditional banking dead?

We address many of the gaps by identifying various frameworks and theories to support the variables we have identified in our conceptual model. For example, most companies invest in business modeling but remain uncertain whether their investments allow them to change and adapt their business fast enough to combat disruptors. Previous studies report the benefits of mobile banking tools or alternative payment options like PayPal, Venmo, or Mobile Wallets, but these benefits are unsubstantiated or claimed with limited empirical evidence (Baptista & Oliveira, 2015; Liu et al., 2019; Rafdinal&Senalajari, 2021; Singh & Srivastava, 2020).

A popular theory characterizing an individual's acceptance of new information technologies is the Technology Acceptance Model (TAM), based on the Theory of Reasoned Action (TRA) (Davis, 1989). The TAM theory has been used to study the relationship between a user's perceived utility and ease of use when new technology is introduced into their workplace. COVID-19 saw an increased use in mobile from ordering food to making financial transactions. No age barriers or technical skills are required to use a mobile app, from millennials to leading-edge boomers born in the mid-40s, we all found the usefulness of this technology. The Unified Theory of Acceptance and Use of Technology (UTAUT) and its extension, UTAUT2 (Venkatesh et al., 2003; Viswanath Venkatesh, 2012) are commonly used models in research on technology acceptance. We plan to address the business model and customer satisfaction gaps by proposing how consumers' perception of ease of use and usefulness of technology leveraging TAM will help identify opportunities for firms to include consumers early in the business model development process. In keeping with Clayton Christensen's "The Innovator's Dilemma," we will also propose how companies can survive industrial disruption and remain a leader, attracting and retaining consumers (Christensen, 1997).

Companies such as Procter & Gamble, GE, and Salesforce credit Christensen's theories on disruptive innovation with helping them remain competitive by teaching their leaders where and when to anticipate competition and how to respond to these risks. Current disruption, especially since the pandemic has also driven the "great acceleration"(Christensen, 1997; Vesti et al., 2017). We hope to learn from consumers how they perceive and use new technology, and how businesses can anticipate and respond to disruptors. Scholars predict fintech, media, technology, and communication companies will disrupt traditional banking, as platforms like Blockchain continues to disrupt financial transactions by providing alternative solutions and increased security (Adner, 2002; Christensen et al., 2018; Gertsen\* et al., 2018; Hassani et al., 2018; Lin, 2011). Our study will help traditional banks by identifying opportunities, for example, acquiring fintech with capabilities they cannot develop on their own and allowing them to maintain their dominant position as they drive value to their customers.

## 2. Literature Review

Our conceptually focused review of research relevant to the theory of disruptive technology closely adheres to the procedures employed in other theory-focused reviews. We looked for broad patterns in references to early formulations of disruption theory by searching the Web of Science database for all academic articles citing (Christensen & Bower, 1996). The Technology Acceptance Model (TAM), based on the Theory of Reasoned Action (TRA), is still regarded as the most prominent theory characterizing an individual's acceptance of new information technologies (Davis, 1989). Other research generated from TAM's major variables of utility and simplicity of use will be reviewed. However, technology has advanced from the use of the PC with huge company systems to individual mobile use. Our daily lives have become increasingly digital since the outbreak. This study will analyze financial services "disruptors" and how digital tools and disruptive innovation will drive Industry 4.0, called the "the new industrial revolution" (Manyika et al., 2013).

The impact of the COVID-19 pandemic, business models, and the most recent disruptive technology (mobile technology and Blockchain) in financial services will be addressed. We will differentiate between articles published in management journals and those published elsewhere between 1989 and 2022 that include any of these terms: disruptive technology, disruptive innovation, digital, mobile, and traditional banking, business models, financial services, and fintech and blockchain in banking. This technique returned 6,400 results; however, we reviewed manually which academic works to utilize in our conceptualization of disruptive technology in financial services and consumer use of mobile technology.

### 2.1 Understanding Disruptive Technology

Clayton M. Christensen defines disruptive innovation as a process by which a product or service starts at the bottom of a market and moves upmarket, displacing incumbents. A key business concept of the early 21st century.

This theory is contentious. Some argue that a technology is disruptive only when it displaces incumbents who relied on it. A disruptive technology alters the performance metrics by which firms compete (Danneels, 2004). Disruptive innovations change business models or introduce radical new products. In Christensen's view, disruptive innovations are phenomena that create new markets, challenge established organizations, and have profound implications for managers.

Computers and information technology were “disrupting” traditional work environments in the 1980's and investing in technology would bring benefits to employees, improved job performance and cost savings (Davis, 1989).

To understand the implications of disruptive technology, we need to start with the foundational theory of the Technology Adoption Model (TAM). It focused on employers learning about end-users and how quickly they adopt new technologies. Technology suppliers communicated these features to increase use, acceptance, and adoption (Davis, 1989) while early adopters, who based on practical use, tend to embrace technology improved their job performance (Veiga, Keupp, Floyd, & Kellermanns, 2017). Some users resisted change by devising workarounds or relying on coworkers' knowledge; however, social influence helped obtain adoption. According to Veiga (2017), integrating a new system into work habits helps achieve proficient usage, but studies show a manager's help can increase employee acceptance of technology (MagidIgbaria a, 1995). Adoption and use of PCs, mobile technologies, and the Internet have increased domestically and globally (Susan A. Brown, 2005). Early writings on innovative technology adoption combined social impact, perceived utility, and usage intentions (Davis, 1989; Lee, Kozar, & Larsen, 2003; Morris & Davis, 2003; Viswanath Venkatesh, 2000; Viswanath Venkatesh, 2003).

TAM's innovation continues to drive adoption, and TAM2 explains perceived usefulness and usage intention in terms of social influence and cognitive instrumental processes. As a result of our study, TAM was found to be the most influential and baseline theory characterizing individual IT acceptance (Lee et al., 2003). While we agree that the UTAUT model is more credible due to the inclusion of more complex organizational technologies, UTAUT2 introduced yet another construct of the use of technology by consumers. The need to comprehend the consumer's perception of ease and usefulness of a new technology can be helpful to further Marketing studies on consumer behavior (Viswanath Venkatesh, 2012).

Hedonism, price value, and habit have driven mobile internet use in recent years. Integrating consumer technology adoption, use, and "enjoyment" confirms the UTAUT paradigm (Nysveen, 2005). Our research will focus on how the banking industry began using online banking technologies to retain customers and add new capabilities to make banking easier (Calisir&Gumussoy, 2008). After the 2008 financial crisis, consumers distrusted bank executives and decision-makers in the banking industry. As the real-estate market collapsed, many Americans lost their homes, others walked away from those investments. Government regulation had to be put in place to protect consumers from future predatory financing tactics. It took banks years to regain consumers' trust and measuring customer satisfaction ensures they are listening and keeping their customers happy.

## 2.2 Banking Disruptions

The first self-service device, the automated teller machine (ATM), was designed to making banking convenient for consumers and save banks money. Phone banking allowed banks to provide financial services via phones connected to their computer networks. This was another convenient way for bank customers to conduct their financing transactions by phone. By the mid-1990s, banks realized the Internet's potential. The Internet eventually replaced phone banking systems (Claessens, Dem, De Cock, Preneel, & Vandewalle, 2002) and other traditional channels (Calisir & Gumussoy, 2008). However, numerous studies show that banks need an omnichannel strategy (branch, internet, ATM, and mobile) to remain competitive and relevant (Jindal et al., 2021).

Traditional banks claimed in the 2000s that they had become technology companies, and not just traditional banks adopting digital solutions. Given banking's complex and legacy applications, change has been slow (Krasnikolakis et al., 2020). However, digital trends have increased consumers and the banking industry comfort with new technology.

Mobile platforms are increasingly used for searches, purchases, and financial transactions. In 2021, over 1.43 billion smartphones were sold worldwide, ushering in the subsequent phase of TAM and disruptive technology (Statistica, Feb. 2021). When users see clear advantages in a new technology, they're more likely to adopt it (Lee et al., 2003).

Embracing digital is a big step for traditional banks. To profit from digital technologies, traditional banks must change their business models and be highly mobile (Stepanova & Karakchieva, 2018). Traditional banks can survive in this environment by developing flexible platforms with open interfaces, ecosystems, and ecosystem development, and possibly by leveraging fintech (Maksimova & Bubnova, 2021). Digital technologies reduce transaction costs, open new opportunities, and increase market needs and demands, which speeds businesses. According to an Accenture survey of 120 large banks, 88% are trying to build partner ecosystems.

### 2.3 Future Banking Disruptions

In the wake of the pandemic, digital innovation was given a dose of adrenaline. Many banks accomplished long-term digital goals in months. Financial institutions use technology to retain current customers and attract new ones. Banks and customers no longer interact face-to-face due to self-service technologies (Eriksson & Nilsson, 2007). During the pandemic, this notion was intensified with restricted in-person, social banking activities as consumers feared being exposed to others and banks limited branch hours, to keep customers and employees safe. As the COVID-19 infection rate increased, the public's interest in fintech grew (Yan & Jia, 2022).

McKinsey & Company found that industries with declining profits before the pandemic had even greater losses, while those investing in digital platforms saw gains (Bradley et al., 2020). Several of these industries that had not planned for digital transformation saw their profits decline during the pandemic. Future-ready companies rode digital trends and pulled away from their peers. Fintech gained strength, giving consumers alternatives to cash and account management. Immediately after the pandemic, consumer acceptance and usage of digital trends like online banking and online education skyrocketed and these digital trends will continue.

Consumers had little exposure to platforms like Venmo, Zelle, or Klarna, but their rising use led to cashless transactions and new payment options like "buy now, pay later" (See-To et al., 2014). Emerging digital technologies like mobile, Artificial Intelligence (AI), cloud, blockchain, and Internet of Things (IoT) provide huge business benefits for enhancing the customer experience, streamlining processes, and establishing new business models (Liu et al., 2019). Mobile internet, AI, and 3-D printing are a few examples of digital disruption technologies that will replace existing technology. Company concepts like Airbnb (hotel solution), Bitcoin (currency without actual money), Uber (taxi model without owning taxis or drivers), and Google and Facebook (advertising platforms) are their own marketing agencies, driving consumers to try these digital platforms (Gertsen\* et al., 2018).

Initially, the banking industry appears to be doing well. Despite more competition from fintech or digital only (neo-banks), big banks around the world have seen strong revenue growth and good profits in recent years whereby the pandemic did not slow them down. For many, it has been a chance to reassert their relevance in a changing world and close digital gaps with fintech. Digital wallets are among the fastest-growing technology. Payment apps are currently servicing billion of users and are part of a bundle with e-commerce, chat, deliveries, food ordering, and ride-hailing. PayPal, Apple, and Google are behind payment innovations, even though Visa and MasterCard are the leaders in transaction payments. Even traditional payment systems and banking may also be disrupted by digital currencies as cash is being used less and less. New players like Facebook's Libra and other cryptocurrencies disrupting the function of cash with increased risk because they are not regulated or guaranteed by the government (Vives, 2019).

Many academics use specific and 'successful' banks as examples to demonstrate and explain the sector and provide digital transformation strategies. Tinkoff Bank is a well-known example of how a digital bank can be built in a bureaucratic market by focusing on value (Maksimova, 2021). Other scholars have used large U.S. banks as case studies to learn about customer adoption or digital technology's impact on competition and financial stability (Vives, 2019).

We must examine business models to learn how banks can better serve customers and compete in the digital age (Baden-Fuller & Haefliger, 2013). Firms must constantly improve their function with disruptive innovation which is difficult to grasp and rarely a one-time effort. In fast-paced markets, established organizations tend to invest in incremental rather than radical innovation, and are less successful at bringing radical innovations. If a company's disruptive innovation capability is hampered by roadblocks, overcoming them will be difficult and affect their ability to modify their business model.

Digital disruption is driving the most significant business change, leaving incumbents with potentially obsolete legacy systems (e.g., mainframes) and overextended branch networks to match new competitors' service standards (Vives, 2019).

Customers expect usability and transparency from interfaces. Digital businesses have transformed their business models to solve client problems and set new service and customer experience standards whereas banks have traditionally focused on product distribution (Rajnak&Puschmann, 2020). Existing business models in the financial services industry are projected to be altered by the implementation of Blockchain technology. Blockchain is a computer-based distributed database that preserves records and manages transactions.

In lieu of a central authority (such as a bank), blockchain relies on the network to approve "blocks," or transactions ledgers – which are subsequently added to the "chain" of computer code. There are limited risks associated with the use of cryptography and the distributed nature of transaction approval make the system more resistant to tampering (Osmani et al., 2020). Companies across all industries do not understand blockchain's strategic impact on their business models despite its reputation as a strategic technology (Hassani et al., 2018; Rajnak&Puschmann, 2020). Studies on blockchain and business models highlight that they are interrelated with the strategic use of information technology (Rajnak&Puschmann, 2020; Thanapal et al., 2020). Therefore, blockchain is changing the financial services industries and contributing to the rise of big data in banking. The lack of academic research and development into blockchain in banking is hurting blockchain's acceptance and development. While some banks are embracing blockchain technology, more research is required to overcome the obstacles impeding its global adoption in banking (Osmani et al., 2020).

Literature has developed the concept of the business model in the context of digitalization to analyze the impact of technology on a company. Our research will focus on the impact of blockchain on a bank's business models. Recent threats from fintech start-ups such as peer-to-peer lending (The Lending Club) and robo-investing (Robinhood) have disintermediated traditional banks in some cases (McKinsey and Company 2018). Many banks are analyzing their current business and considering new technologies (Libert et al. 2016). Telebanking, online and mobile banking, and fintech have created new consumer experiences while blockchain technology is being hailed as the next disruptive technology that will change traditional banking. Blockchain could overhaul the financial system like the Internet did for media and confirming this disruption is The World Economic Forum (2015) predicting that 10% of GDP would be stored on blockchains by 2025. Therefore, banks are expected to replace or supplement their current centralized model with blockchain and other network-based methods (Libert et al. 2016). In order for blockchain to overcome its biggest hurdle it must achieve global banking adoption and the perception of blockchain as a threat to established models (Lang & Zhang, 2019; Libert et al., 2016).

Despite successful innovation implementation, few companies know what is needed (Christensen, 2003). The term "innovation" implies novelty. Technical innovation changes processes, functionality, or utility, not value directly. Long-term, it benefits customers. Innovation can be products and services or changes in how we create and deliver them (processes), individual (improvement), functional (process improvement or adaptation), company (radical product, service innovation, new business models, and industry (technology breakthroughs) can all be innovative systems (Edquist, 2017). In a rapidly changing, uncertain world, disruptive innovation is key to competitive advantage (Thomond & Lettice, 2002).

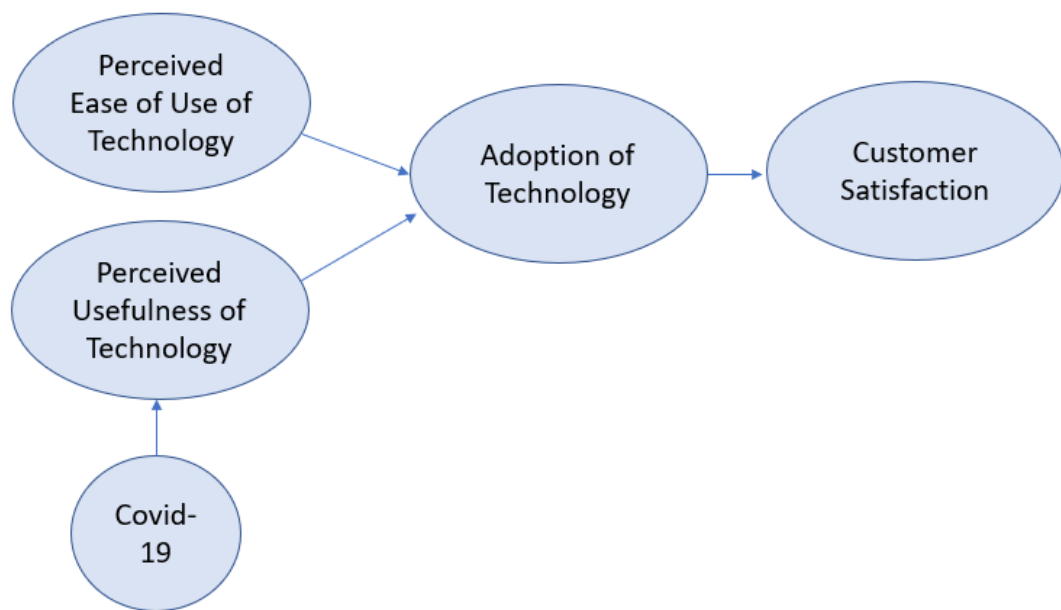
### **3.0 Theoretical Framework**

In this section, we elaborate on the literature review and propose a set of propositions. In doing so, we focus on the consumers' perceived usefulness and ease of use regarding adoption of an innovation or technology which can be a source of competitive advantage. This investment in technology can impact the consumer's willingness to adopt the technology especially if it makes the process easier, faster, cheaper – adding value for the consumer. A firm can retain customers by using a business model innovation which gives consumers more than what they can ever imagine.

Business models are intertwined with technological advancement, yet the business model itself is fundamentally distinct from technology (Baden-Fuller & Haefliger, 2013). A business model identifies the customer, engages with their needs, satisfies them, and monetizes their value. The framework also helps categorize the business. We take a reciprocal approach to the business when formulating the interaction between the consumers' perceived usefulness and ease of use of the new technology.

To begin, COVID-19 had an impactful modifying effect on technology adoption. Although disruptive technology like payment apps and Amazon online purchases were occurring pre-pandemic, COVID-19 put these activities in fast-gear. Users of mobile apps were already comfortable utilizing using mobile technology, but the utility of many other applications increased significantly with business closures across many segments. Whereby business models have been identified by many studies as having a mediator effect on technology, we will focus on the use and adoption of technology itself in our model (Baden-Fuller & Haefliger, 2013; Nielsen et al., 2017). The right technology depends on the business model's openness and user participation; however, we suggest technology management, innovation, and strategy research questions. This in turn can impact customer satisfaction by improving the firm's profitability through customer satisfaction metrics. We will begin our discussion by considering a consumer's perception of ease of use and usefulness of technology as displayed in the model in **Figure 1**.

**Figure 1: Concept Model of Disruptive Technology Adoption and Customer Satisfaction (NPS)**



**3.1** The COVID-19 pandemic, much like other previously disruptive events, has had a tremendous impact on both the economy and our daily lives. In contrast to other natural disasters, this made an impact on a global scale. Additionally, it is distinguished by the fact that it was persistent (the pandemic continued for a year and a half). Despite this, the COVID-19 pandemic is unprecedented in its reach across the globe (WHO, 2021). Driving change and major technological progress, which has been referred to as "The great acceleration" in the world of business and organizations (Bradley et al., 2020). To encourage research on this issue, we submit the following general proposition:

**Proposition 1a: COVID-19 restricting the access to traditional banks is a predictive phenomenon that increased the perceived usefulness of disruptive technology (mobile technology/banking).**

According to the findings in a number of studies, the intersection of COVID-19 and current technology has led consumers to swiftly adapt to new technologies and expand their use of digital business platforms otherwise known as mobile apps as they perceive them to be useful. E-commerce and digital business platforms were able to handle future shortage situations and allowed customers to stockpile products (Hao et al., 2020; Pillai et al., 2020) to help them manage through the crisis. In addition, technology enabled social interaction to thrive throughout the pandemic, as evidenced by the increasing use of various social media platforms (Pillai et al., 2020). The new normal is the adjustment of societal interactions and behaviors to the existing conditions (Yan & Jia, 2022).

Unlike the pre-COVID era where consumers were free of disease threats and enjoyed crowded social gatherings of all types, in the new norm, people were faced with the threat of COVID-19 and limited their interactions socially with others. Several studies highlight how in the face of the pandemic consumers did without many social activities like in-store retail shopping and flocked to Amazon as their "go-to" online solution for purchases (Jindal et al., 2021).

We identified that there was a change in consumer behavior due to the pandemic. Therefore, COVID-19 has a modifying effect on the relationship between a consumer's perceived usefulness of mobile technologies and applications (Cruz-Cardenas et al., 2021).

Additionally, studies reference that consumers across all age groups are behaving the same when it comes to their likelihood of spending across different product categories or services when using technology. In other words, age does not have any interaction with the likelihood of adoption of low touch and digital activities (Pillai et al., 2020). Consumers have pivoted towards online services and digital solutions as well as no-contact or reduced-contact channels to get goods and services. Social media, grocery delivery apps, purchasing online or opting for home delivery, online platforms for e-learning, exercise/wellness apps consumers have increased their use post-Covid. Hence, organizations need to embrace a multichannel ecosystem and converge the operations of their online and brick-and-mortar stores (Engle, 2018).

Other studies support the proposition that COVID-19 has a modifying effect on consumers' perception of the usefulness of disruptive technology as the pandemic also caused consumers to fear education failure, losing social relationships (FOMO-fear of missing out), staying on top of financial obligations. This increased the consumer's perception to find mobile technology and apps, useful (Al-Marroof et al., 2020). There are two key factors within TAM theory which are perceived ease of use and perceived usefulness and these support the proposal that COVID-19 is a predictive phenomenon to increasing the perceived usefulness of disruptive technology (mobile technology/mobile banking). Literature suggests that a consumer's perception of usefulness of technology predicts the consumer adopting the new technology. This can also be influenced by members of their social network to try the new technology (Brown & Venkatesh, 2005).

**Proposition 2a: Consumer perception of ease of use of (mobile) technology is a strong predictor of adoption of the technology in place of traditional banking.**

3.2 The empirical evidence from the literature related to TAM as well as UTAUT2 aligns with the proposition stated regarding consumer perception of ease of use as a strong predictor of use of technology for example using fintech apps for sending money to friends and family. There is an array of financing apps like Klarna that even allows consumers to purchase a product now and pay later (pseudo layaway plan). Previously retailers like Kmart Corporation allowed consumers to put items on hold for example for Christmas shopping. Consumers would pay items down monthly but did not have possession of the item until it was completely paid off, then Kmart would provide the items to them. Klarna pays upfront for the consumer and then (with no fees), allows the customer to pay the same amount in monthly installments. These beneficial and easy-to-use platforms have made consumers swarm to use them. This is the same theory as researched by Brown & Venkatesh, 2005 ease of use is a strong predictor of the adoption of technology.

Consumers who find that they have the necessary knowledge, skills, or abilities to use mobile banking, as perceived self-efficacy is defined, will adopt, and use mobile banking instead of visiting their local branch. This is the reasoning behind the theoretical reasoning presented by Davis (1989). There is also empirical support for a causal relationship between self-efficacy and perceived ease of use (e.g., Agarwal et al., 2000; Venkatesh, 2000; Venkatesh & Davis, 1996). Based on theoretical and empirical evidence from the IS literature, we find that the proposition regarding consumer perception of ease of use of mobile technology is a strong predictor of adoption of technology. Mobile banking systems must be both easy to learn and easy to use as perceived ease of use was also found to be a significant antecedent to the perceived credibility of Internet banking (Wang et al., 2003). Today, consumers use mobile payment vendors to make online or in-store purchases by uploading credit card or debit card information to their phones. Users of this disruptive technology have increased dramatically, with eMarketer predicting the total value of transactions made by tapping a phone on an in-store terminal will reach \$210 billion, up from \$8.7 billion in 2015. Despite progress and user adoption of mobile payments, users' intention to use mobile payments is negatively influenced by perceived risk (Liu et al., 2019). This has not deterred consumers from leasing or making payments on their mobile devices as smartphone purchases continue to increase every year.

**Proposition 3a: Consumers' perception of the usefulness of (mobile) technology is a strong predictor of adoption of the technology.**

3.3 There are significant effects of perceived usefulness on usage intention (Davis, 1989; Susan A. Brown, 2005; Viswanath Venkatesh, 2000). Studies have provided that the primary reason consumers use mobile banking systems is that they find them to be useful (Lin, 2011; Luarn & Lin, 2005; Muñoz-Leiva et al., 2017).

Reports on mobile banking indicate that potential customers may not be using the systems, even though they are available. This is despite the fact that millions of dollars have been spent on the construction of mobile banking systems. The technology acceptance model (TAM), which predicts whether individuals will accept and voluntarily use information systems, has been the subject of a significant amount of research. However, the TAM has a number of limitations, including the omission of an important trust-based construct in the context of mobile commerce and the assumption that no barriers prevent an individual from using a technology if he or she chooses to do so. Literature supports TAM constructs and its ability to accurately forecast consumers' intentions to use mobile banking. Several implications for management strategies for mobile banking are related to its usefulness advantage of the uses of the innovation compared to another and how it positively influences its rate of adoption. It is therefore possible to suggest that the advantages that mobile banking offers over other banking methods would affect its rate of adoption.

Additionally, if mobile technology is part of an individual's lifestyle, that positively impacts mobile banking's use and improve customer satisfaction. We can comfortably agree that the usefulness and practical use of mobile banking can drive customer satisfaction. Thus, we propose the following:

**Proposition 4a: Consumer adoption of technology is believed to have a positive impact to the firm's customer satisfaction based on NPS (Net Promoter Score on customer satisfaction).**

3.4 Customers' habits are changing because banks are using technology more to provide services. This means that customers need to feel comfortable using technology-based services. Since most of the products a bank offers are similar to other bank products, it is more important to set themselves apart from their competitors in other ways that can affect customer satisfaction and loyalty. Customer satisfaction and loyalty have been shown to be the most critical factors for long-term business success (Hallowell, 1996). In this case, we are looking at adoption of technology to have a mediating relationship to positive or negatively impact a firm's Net Promoter Score, which is a metric many Fortune 1000 firms use to measure customer satisfaction based on "will you recommend the (brand/product, company, system) to family and friends?"

Customers will have more confidence in a service provider's abilities if they are happy with the service and will stay with that provider (Fan & Suh, 2014). As a result, the perception of customers regarding service quality in banking has gained importance because it has been shown to be a strong predictor of customer satisfaction and loyalty (Andreassen et al., 1998). Literature has found that customer service and ease of use of technology and reliability have a significant impact on customer satisfaction and customer loyalty (Levy, 2014). It is reasonable to think that satisfaction with service quality will lead to higher levels of technology usage of a bank's services. Therefore, customers who are happy with the services will likely use them more in the future and may tell others good things about the bank.

It was also found that technology convenience and customer satisfaction have a significant and positive impact on customer loyalty (Umashankar et al., 2017). These dimensions of service quality (ease of use, usefulness, and reliability) should be viewed as the levers of improving perceived service quality with respect to disruptive technology in banking in the minds of its current customers. How they impact customer satisfaction and customer loyalty can offer banks valuable insights regarding which aspects of the service to focus on in order to improve customer satisfaction and value creation (Lähteenmäki et al., 2022). It is in the best interest of the bank to get customers to use mobile technology often and consistently as customers expect it to be fast, easy, and a useful service. If the bank does not meet their technology and servicing needs, this can cause decreasing customer loyalty and negatively impacts customer satisfaction (Levy, 2014).

Other research streams have made important contribution to literature on user acceptance of information technology and employ intention or usage as key dependent variables (Viswanath Venkatesh, 2003). Even other streams of research highlight how Expectancy Disconfirmation Theory (EDT) is based on Festinger's Cognitive Dissonance Theory (CDT), which says that people feel uncomfortable when their expectations don't match reality (Tariq Ismail Al-Nuaimi et al., 2016). The EDT can figure out how happy a customer is by comparing what they expected and what they receive from a product or service (Elhani & Bakri, 2012). If the performance is seen to be better than expected, this leads to positive disconfirmation and satisfaction.

We are proposing that the adoption (user acceptance) of technology has a mediating effect on customer satisfaction. Thus, measuring satisfaction is a cumulative phenomenon that reflects the sum of consumers' interactions with the organization.



As a means of reaffirming the relationship and ensuring future loyalty, the consumer expects the company to find solutions when a problem arises (Morgeson et al., 2020). Customer satisfaction is a key concept in marketing research (Luo & Homburg, 2007; Tam, 2004), with beneficial effects on firms. Customer satisfaction affects financial performance (Hallowell, 1996), increases customer loyalty (Morgeson et al., 2020), and can lead to positive word-of-mouth communication (Brown, 2005). We confirm with the analysis of previous literature that a bank can increase customer satisfaction by offering innovative technology solutions that customers find useful. This can make customers more loyal and attract new customers, which will increase the bank's future revenue streams, positioning the bank to maintain its dominant role in the financial services industry.

#### 4. Conclusions

Research on disruptive technology and customer satisfaction effects in banking is limited. This is a problem as consumers become familiar with fintech and alternative financing solutions, making branch visits obsolete (Chen et al., 2017). No longer can traditional banks improve customer satisfaction without investing in technology. Future research on Blockchain and fintech must be explored to understand new disruptive banking forces in banking. Theoretical arguments and initial results show the importance of focusing on the consumer when introducing an innovative technology. By adopting disruptive technology, firms can gain a competitive edge (Coccia, 2020).

Banking could adopt and expand blockchain technology. The industry is divided on how useful and feasible blockchain could be for banking. When the industry and regulators agree on how to proceed, the opportunities can outweigh the problems as Big data and blockchain will stay. In a highly competitive and volatile market, banks must decide if they will innovate with big data on blockchain or risk becoming the next Blockbuster instead of being Netflix.

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