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Is Disruptive Technology Driving Adoption and Use, Making Traditional Banking Obsolete?
-A Review and Integrative Framework of Technology Acceptance Model

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Abstract

Although the Technology Acceptance Model is the foundational theory to understand how users accept and use new technology, UTAUT2 plays a significant role as it includes technology use by consumers and identifying how disruptive technology increases use and acceptance during the Pandemic will give a fresh perspective to past studies. We will review and synthesize these theories concurrently, using the concepts of adoption and use as our organizing framework. Our review encompasses twenty-eight articles centered around the technology acceptance model (TAM), User Acceptance of Information Technology (UTAUT & UTAUT2) theory, published between 1995 and 2021 in 16 journals across several disciplines. Additionally, we identified future research areas regarding disruptive technology with focus on contactless and mobile payment platforms providing scholars opportunities to push theoretical boundaries and offer further insights into the latest trends of disruptive technology, their use and acceptance.

Keywords: Disruptive, New Technology, Use, Adoption, Loyalty, Mobile, Banking, And Financial Services

Introduction

Disruptive technology, where does it start and where will it go? If there was ever a time to understand how consumers use technology and how "disruptors" have taken advantage of Internet platforms to provide fast, easy, and free services, the time is now. Pandemic or not, the world has changed, and Disruptive Technology is accelerating those changes.

Most recent studies on the adoption and use of new technology were centered around mobile technology and how it increased the popularity of mobile banking (Chen, 2013). For some mobile banking was one of the last major technological innovations (Lin, 2011). With the explosion of new "disruptive" technology in all segments, not just in banking with fintechs, technology-media-telecommunication companies, and digital-only banks moving customers from traditional banking channels to other contactless options, but also how Amazon continues to change the landscape of how products are accessed by customers and monetized by advertisers.

Although the Technology Acceptance Model is most referred to as the foundational theory to understand what influences users to adopt and use a new system (perceived ease of use and perceived usefulness) have provided insights into users of technology and their attitudes towards adoption and modifiers such as gender, age, education, and culture have expanded the theory through surveys, observations within the financial services industry and other technologies. While scholars acknowledge limitations with their research, those gaps regarding understanding other users across the US and leveraging other research techniques not just limited to students, can serve as potential opportunities for new research to broaden the TAM context.

Many marketers highlight that "the key to surviving this new industrial revolution is to lead it" and it requires two key elements of agile businesses, awareness of disruptive technology and a plan to develop talent to make the most of it (McKinsey, 2013). Some of these technologies that will transform the global economy by 2025 are the mobile internet, artificial intelligence, virtual and augmented reality to name a few. How is the exposure to disruptive technology driving adoption? Will traditional institutions find ways to reinvent the way they conduct business, or will they be left behind left behind during this new technology revolution?

Digital Disruption: What is it?

Digital disruption also called disruptive innovation has emerged from new entrants that find gaps in traditional business models, and they rely on the Internet or software to "disrupt" large, established companies that have not planned for innovation. This can cause severe damage to incumbents with comfortable share of the market or segment position (Ernest, 2018). We have witnessed the damage that a disruptor, like Amazon, has made to the traditional brick and mortar, retail store franchise. Even with long histories of tradition, brand recognition, and distribution strength, retail chains like Macy's, Lord & Taylor, Sears and Walmart, conformed to keeping their stores open need to consider how consumers' shopping habits have changed (Jindal, Gauri, Li, & Ma, 2021). During the pandemic, consumers had very few choices and many turned to going online to make essential purchases as Covid restrictions were put in place. Those traditional retailers that survived the pandemic have adopted an omnichannel strategy, but those that were late to the game, have had to close many of their brick-and-mortar establishments, limiting their regional presence or opting for an online strategy (Jindal et al., 2021). Online use, mobile banking, mobile apps for purchasing food and apparel, shared services, entertainment streaming, and other products, have increased over the years but Covid-19 drove much of this activity. Many new platforms that consumers had not considered before the pandemic, like Venmo or Zelle to make peer to peer payments are now the norm.

This research will attempt to close the gap with previous studies on the technology acceptance model (TAM), review banking "disruptors" and how digital tools and disruptive innovation will drive Industry 4.0 or as others call "the new industrial revolution" (McKinsey, 2013). While there are various theoretical models such as perceived usefulness, perceived ease of use, and user acceptance of information, the Technology Acceptance Model (TAM), which was designed based on the theory of Reasoned Action (TRA), is still considered the most influential theory describing an individual's acceptance of new information systems (Davis, 1989). We will review other theories that have derived from TAM with its main variables of usefulness and ease of use. The theory defines how consumers (users) engage and feel comfortable using new systems, especially if it helps them perform their jobs better; however, technology has evolved since the use of the PC with large enterprise systems to individual mobile use. The gap lies in how mobile-intensive our daily lives have become, especially since the pandemic.

There is a need to describe, synthesize, evaluate, and integrate the results of all the articles included in this literature review as Webster & Watson, 2002, highlighted, a literature review can build a firm foundation for advancing knowledge with the purpose to synthesize findings from existing research on disruptive technology or disruptive innovation and its use and acceptance in the financial services sector. To the best of our knowledge, this is the first time that a period of analysis will include the impact of the Covid-19 pandemic and address the most current disruptive technology in the financial services industry. We hope to provide a clearer, concise, and most recent view of disruptive technology acceptance (Jane Webster, 2002).

Disruptive Technology: 1989-2009

Disruptive technology (innovation) was first analyzed by Clayton M. Christensen and his collaborators beginning in 1995 and has been called the most influential business idea of the early 21st century. Looking at the technology trends in 1989, computer systems and information technology were "disrupting" traditional work environments. Subsequent research focused on the firm's interests in measuring successful implementation of a new system and validating that their investment would provide benefits for its employees improved job performance and deliver cost savings to the firm (Fred Davis, 1989).

Many studies were conducted to provide employers with data on the system implementation and adoption as well as help vendors understand how end-users were quickly adopting the new technology. Technology vendors obtain feedback on what functionality should be considered and communicating these features drive higher acceptance, adoption, and use (Davis, 1989). Moreover, adopters in the early stages of technology introduction gained much proficiency based on their actual use over time, hence improving adoption (Veiga, Keupp, Floyd, & Kellermanns, 2017). While some users resisted using the new technology and in order to gain proficiency found workarounds or choose to lean on coworker's knowledge. Adoption and use comes down to the user's attitude towards the new technology (Boudreau, 2005a). Veiga, 2017 on the other hand, found that integrating a new system into work routines helps to obtain proficient usage post-adoption. Studies identified ways to gain additional acceptance of technology by obtaining management support which has a positive impact on the employees' attitude towards adopting a system; however, it also contradicts that too much management support can work the reverse effect (Magid Igbaria a, 1995). For example, we experienced resistance when a new ERP/CRM system was implemented at local automotive company. The more management supported the implementation of the new system, the more the sales team resisted and viewed the new system as additional work and training required took them away from selling. They were accustomed to the old system and found workarounds instead of leveraging the new ERP/CRM tools and system.

Today, increased digitalization has driven faster adoption and use across many industries, home and work environments, domestic and international with the use of personal computers, mobile technology, and the Internet (Susan A. Brown, 2005). Early articles on new technology acceptance had extended studies to include social

influence, perceived usefulness, and usage intentions with a synthesis of eight models of new technology acceptance to develop the unified view of user acceptance (Davis, 1989; Lee, Kozar, & Larsen, 2003; Morris & Davis, 2003; Viswanath Venkatesh, 2000; Viswanath Venkatesh, 2003). We will highlight the differences of those models and how TAM's expansion with the introduction of new technology continues to be the dominant construct for adoption and use.

Expanding TAM

Venkatesh and Davis expanded TAM and introduced TAM2 which included "explaining perceived usefulness and usage intention in terms of social influence and cognitive instrumental processes." Our research highlighted how TAM was the baseline and most influential theory describing an individual's acceptance of IT systems (Lee et al., 2003). We confirm that the UTAUT model carries even more weight as it includes more complex organizational technologies that practitioners or managers were most interested in learning about employee's intent to use a new system or technology. Gender and age as controlled variables highlight what the differences are between men and women. In particular, the study highlighted significant differences with younger men exhibiting stronger performance expectancy influence on their intent to use the technology compared to older, experienced women who were compelled to use the technology if it would help their job performance.

Expanding UTAUT

Further studies on the impact on UTAUT based on the eight models including experience, voluntariness, gender, and age whereby gender and age impact technology adoption, an older women tend to have additional challenges (effort expectancy will be most salient to women) when it comes to adoption of new technology (Viswanath Venkatesh, 2003). ender as Is there a difference in how men and women perceive the usefulness of technology and how they adopt the new technology to improve their job performance. This model did not include culture, and this seems to be a gap as some races have younger users (Millennials are more technically oriented) and are more comfortable using new technology as they are high mobile users. Most of the studies were in countries that had high mobile users or limited in sample size, so the data had some bias. Although these studies are the baseline to understanding user intent to adopt new technology, we wanted to focus on research that ties to disruptive technology and its impact on the traditional banking model. We were most interested in the introduction of the consumer to the construct of TAM and understanding how they perceive adoption and use of new technology. How do these studies relate to consumers? What motivates consumers when they are introduced to new technology and what drives them to consider, accept and use it? These are the questions that seemed to be gaps in the research history of TAM.

Building further UTAUT "2"

UTAUT2 is building on the past and extending UTAUT of most significance is that the model introduced the consumer technology use context compared to general theories on technology acceptance there was a great need to understand the consumer's aspect of new technology acceptance and use (Viswanath Venkatesh, 2012). In more recent years, that distinction to include consumer use based on their enjoyment (hedonistic motivation), price value, and habit as major drivers motivating or influencing consumers' use of mobile internet technology. Although this study was limited to consumers in Hong Kong where there is a high penetration of mobile internet use, it did extend the UTAUT model by including consumer adoption and use of technologies as well as "enjoyment" and its important of consumer product and technology use (Nysveen, 2005). Related work continued to establish theoretical foundations of understanding adoption and intent to use new technologies and to further our research we focused on how the banking industry began to use internet banking technologies (we will refer to it as online banking) to retain customers and introduce new functionality making it easier for bank customers to use (Calisir & Gumussoy, 2008).

Disruptive Technology: Online Banking and TAM

Disruptive technology describes a process by which a product or service begins initially at the bottom of a market segment and then relentlessly moves upmarket, eventually displacing established competitors. Throughout our banking careers, we worked with senior leadership on investigating how to use technology to the advantage of the bank. Online banking was one of the "breakthrough" or disruptive technology that our employer wanted to invest in and be the first bank to deliver value and convenience to its customers and cost savings to the company.

Although other financial institutions have developed online banking tools to reap the benefits of technology and cost savings, we were the first to be recognized by JD Powers and be named "best in class, online banking provider." The bank delivered new functionality to make customers "stickier" early in the online banking adoption process. A "stickier" customer was a loyal customer. They use multiple services such as online banking, wire transfers, payroll direct deposit and tend to be more loyal. Banks are also interested in obtaining a customer's "share of wallet," which simply means, the customer has multiple products with the bank (checking account, mortgage or car loan and credit cards) hence, the bank captures more of the customers wallet. As they use these products, they are less likely to switch banks (high switching "costs" based on time spent to establish online banking services or credit lines). Calisir et al, 2008 highlights how traditional banking channels (brick and mortar, automated teller machine

(ATM), phone banking, wireless application protocol (WAP), electronic fund transfer at point of sale (EFTPOS), and bank branches in stores) can be easily substituted by online banking. We agree that some transactions can be handled interchangeably across channels; however, there are multiple studies that reveal that banks need to have an omnichannel strategy to remain relevant and competitive. Having an omnichannel strategy will help with transitioning from online banking to mobile banking, these channels can substitute for each other. Mobile platforms are gaining more momentum as customers are on them daily for search functions, purchases and financial transactions. When users perceive that new technology has distinct advantages over the old technology, the likelihood of adopting the technology increases (Lee et al., 2003). By 2009 there were 173 million smartphones sold worldwide leading to the next phase of TAM and Disruptive Technology (Statistica, Feb. 2021).

Disruptive Technology: 2010-2017

Mobile Banking and Technology Acceptance Model

Growth in mobile banking has followed the same pattern as growth in smartphone usage and consumers have gravitated to using mobile banking platforms as it gives them access to make transactions whenever and wherever (Lin, 2011). Sales of smartphones jumped from 296 Million sold in 2010 to 1.5 billion sold through 2017 (Statistica, 2021). Information security and sharing personal information online or by mobile devices are concerns customers have impacting adoption due to perceived risk (Chen, 2013). Many studies have outlined what are the perceived risks (financial, performance, time, psychological, and privacy) associated with adoption and use; however, mobile banking's success follows that of online banking (Susan A. Brown, 2005). While other studies identify a lack of adoption of mobile banking based on the task technology fit (TTF) model and the unified theory of acceptance and usage of technology (UTAUT) adding performance expectancy, social influence, and facilitating conditions have significant positive effects on user adoption (Brown, Cajee, Davies, & Stroebel, 2003; Chen, 2013; Tao Zhou & Zhang, 2010). Users are becoming more familiar with mobile apps and are looking for ways to improve their daily lives and simplify how money flows leveraging technology.

Individual User Experience and Intention to Use Mobile Services

Previous research focused on the individual users' experience, intent, and adoption of new systems and technology in their work environment. Early adopters achieved proficiency based on the user's pre-adoption expectations having a greater motive to integrate the new system into their work routines (Veiga et al., 2017). An example we experienced was the implementation of a new ERP/CRM system at a local automotive company. While employees wanted a more sophisticated tool to provide reports for the sales team, individual negative perception, and bias on the usefulness of the tool impacted adoption. After obtaining the business development insights and their requirements, the most cost-effective solution was implemented but company-wide adoption was compromised because of negative word of mouth and the tool not having the same brand awareness as a more popular sales tool. Although (Chen, 2013) highlights how a brand effects attitude and intension regarding mobile banking services, this concept has practical application with any technology or system acceptance, negative perception, lack of brand awareness and perception of usefulness can impact adoption of technology. Only after obtaining buy-in from senior salespeople on the benefits of the new mobile sales tools did others begin to consider using the new ERP/CRM system. TRA (theory of reasoned action) defines the links between beliefs, attitudes, norms, intentions, and behaviors of individuals as evident in the case with the local automotive company in our example (Magid Igbaria a, 1995). According to this theory, human beings are usually rational and make systematic use of information that is available to them. In other words, a person's behavior determines how they perform which influences their attitudes (Luarn & Lin, 2005).

Mobile – Disruptive Technology

Mobile technologies have continued to evolve and as consumers become more familiar with using their smartphones, companies that offer solutions to "disrupt" and bring added convenience to mobile users, win. Mobile devices that were included in the UTAUT2 research were handheld devices like Blackberry with limited functionality and no internet connectivity. The use of smartphones in particular the iPhone was considered a radical and disruptive technology within the mobile device industry, creating new users expecting a suite of features not available on traditional handheld devices (Ha, Canedoli, Baur, & Bick, 2012). Other brands and devices like google products and smartwatches began to offer the same functionality as the iPhone at competitive prices, driving acceptance, consideration, purchase, and use (Viswanath Venkatesh, 2012). During this period between 2010-2017, there were about 1.5 billion smartphone users, and a 46.5% penetration was expected by 2020. Mobile use and adoption are obvious given the number of worldwide sales as highlighted on Statistica's, February 2021 report.

There are still many ties to TAM including the consumer context in particular price because consumers bear the cost of the new technology or service. As we discussed previously, age, gender, and experience and including culture with Hofstede's moderators (individualism/collectivism, uncertainty avoidance, long/short term, masculinity/femininity, can identify how diverse consumers acceptance and use new technology (Baptista & Oliveira, 2015). The abundance of articles on mobile banking and mobile services indicate how technology is

driving interest not only for the financial services sector but across many other sectors, education, retail, medical and sciences. The combined UTAUT2 theory with cultural moderators provides new insights into factors affecting how mobile technology is being used. Mobile technology has also opened doors to countries like Africa where the traditional approach of bank branches requires higher investments and is not the most effective way to reach new customers, especially those that live in remote areas outside of main cities (Baptista & Oliveira, 2015; Viswanath Venkatesh, 2012). Mobile technology continues to evolve and so does understanding how fast technology is being accepted by consumers.

Use of Mobile Banking

For financial institutions, mobile banking was a critical disruptive technology that involves the use of a mobile phone to perform financial transactions linked to a customer's bank account. With the widespread adoption of mobile phones and the success of online banking, mobile banking is a complementary extension gained higher adoption than many other past technologies. Even in low-income countries, like Africa, where customers are not located near branches, mobile banking can bring basic banking to unbanked consumers in those markets (Anderson, 2010; Baptista & Oliveira, 2015; Viswanath Venkatesh, 2012). There is also cost savings associated with mobile banking for financial institutions as more expensive channels can be substituted with mobile, such as ATMs, Call Centers, and branches (Ha et al., 2012). In addition to mobile use increasing and more and more consumers purchasing smart phones, financial institutions should design intuitive and easy-to-use interfaces as perceived ease of use is still the main driver for mobile banking adoption. The growing body of research has focused on integrating TAM with Theory of Planned Behavior (TPB) to predict mobile banking adoption (Mohamed Gamal Aboelmaged, 2013). While (Luarn & Lin, 2005; Zhou, Lu, & Wang, 2010) validated determinants for intent to use mobile banking services to include perceived usefulness, perceived ease of use, perceived credibility, risk and trust (Malaquias & Hwang, 2016; Pavlou, 2002).

Mobile Banking has improved customer's quality of life, introduced unbanked and younger customers to the mix, while driving efficiencies to financial institutions. Banks, have an advantage over new entrants as they can rely on their brand name recognition and are insured by the Federal Deposit Insurance Corporation (FDIC). This is a competitive differentiator for banks compared to fintechs and other models not federally insured. The financial crisis in 2008 drove law makers to establish laws i.e., fair lending, to protect consumers from predatory lending. Usefulness, social norms and social risk are also factors that influence the intention to adopt mobile banking services and relationships (risk, brand image, brand awareness) which significantly affect both users' attitude and intention (Chen, 2013; Riquelme, Karjaluoto, & Rios, 2010). Hence, financial institutions need to communicate with customers the measures they have taken to provide additional security for customers to as they consider mobile banking services. Even though this literature review has covered certain drivers of mobile banking we also need to address the disruptors entering this segment and what that means to consumers and incumbents. The technological disruption continues, and the field is continuously seeking to understand how economic issues, pandemic, and disruptive innovation trends are improving the adoption and use of new technology.

Use of Mobile Payments

Increased mobile banking adoption and its use has led to more innovation. Another complimentary, or in some cases, competing service has led to fragmenting the one-stop banking concept with mobile payments. With the acceleration of intelligent devices and disruptors offering mobile payment platforms such as Venmo, Apple Pay, Google Pay and one of the first mover in the alternative pay space, PayPal, the disruption continues. Exploring mobile payment adoption and user acceptance has defined yet another research model through mobility, accessing payment services through wireless networks. This brings us back to risk(security breach) and cost (handset, hardware/software, subscription, etc.) which inhibit adoption of mobile payments (Liu et al., 2019). While mobile devices such as the mobile phone, smart-phone, laptop, or PDA can be used in a variety of payment services, mobile payments had a slow adoption, worldwide.

While some scholars state that risk and cost are two major obstacles for adopting a new technology, perceived mobility has a positive relationship with ease of use and perceived usefulness (Liu et al., 2019). This was the first that we discovered mobility as an important variable of TAM but might be more dominate going forward and mobile platforms and services continue to evolve. Mobile payment vendors allow customers to upload credit card or debit card information on their phones to make online or in-store purchases. There has been a huge increase in users of this disruptive technology where eMarketer estimates that "by 2019 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 the progress and user acceptance of mobile payments, users' intention to use mobile payments is negatively influenced by perceived risk and perceived cost (Liu et al., 2019), but this is not deterring consumers to "lease" or make payments on their mobile devices as more and more consumers use smart phones.

How consumers feel about mobile banking or mobile payment technologies depends on their perceived risk towards online banking services. Consumers are depending more and more and more on their mobile technology. Companies that provide security features to eliminate perceived risk and reduce costs, will also gain higher adoption,

and use from new and existing customers. As technology evolves and new "disruptive" technology is introduced, scholars will continue to enhance and extend prior models of technology acceptance and use. By 2013 mobile banking had become widely popular as mobile phone users used their mobile devices to access financial data. Security is still a priority concern for these users. Potential cyber hacks and identify theft is has reached the national security levels and governments are demanding that companies, banks, healthcare secure customers personal data and identity. Financial institutions should consider satisfying customer requirements as well as make their platforms user-friendly and secure (Liu et al., 2019). When it comes to mobile payments, according to Statista, 2016, the mobile payment industry is expected to grow to $1 trillion in 2019 from $450 billion in 2015. This provides a great opportunity to contribute to the advancement in knowledge of mobile technologies with future research.

Again, a considerable number of models have been developed to explore the consumers' intention to adopt mobile payment platforms. Among them technology acceptance model (TAM) slightly modified due to including perceived costs, handset (hardware/software) cost, subscription cost, and communication cost (Liu et al., 2019). Perceived mobility is found to have a positive relationship with perceived ease of use on the other hand perceived costs and perceived risks have a negative effect on the users' intention to use wireless financial services or mobile pay. Previous studies added positive factors to the TAM model to identify user's mobile payment intent (Liu et al., 2019; Tao Zhou & Zhang, 2010) and although trust was not part of Liu et al, 2019 research it was described as a limitation in that study and something that should be considered.

Considering the most recent phenomenon of the Covid-19 pandemic, higher use of new technology platforms was propelled due to in-person restrictions for shopping, making payments and other financial transactions during the period of lockdowns and closed non-essential businesses. During the peak of the pandemic, having mobile payment and contactless options ensured the safety of consumers as well as workers to stop the spread of Covid (Rafdinal & Senalasari, 2021). This phenomenon continues to drive new norms for consumers as well as for organizations offering benefits that allow users to access their accounts from anywhere at any time (Muñoz-Leiva, Climent-Climent, & Liébana-Cabanillas, 2017). Disruptors provide what customers want, while incumbents continue to operate with traditional strategies that keep them behind. Our research on disruptive technology and innovation has links to the Technology Acceptance Model (TAM) and UTAUT2 which we identified in the articles we reviewed on mobile services, mobile banking, and mobile payments. The Technology Readiness Index (TRI) was introduced to measure the readiness of mobile payment applications during the pandemic with constructs such as optimism, innovativeness, discomfort and insecurity (Rafdinal & Senalasari, 2021). Given how technology is rapidly changing, there is plenty of opportunity to expand the constructs and include Covid-19 impact on customers intent to use mobile payment applications and other disruptive technology.

Disruptive Technology: 2018-2021

Fintechs, Media-telecommunication Companies, Virtual Banks, and TAM

For decades and at least until the 2008 financial crisis, the financial services industry and the firms that compose it, were traditionally what the industry experts called stable, and employees found as safe employment. Today the industry is being disrupted by new forces of technological innovation, process disruption, and business transformation, resulting in what marketers are calling it the Fintech Revolution with disruption in financial services, energy, transportation, Internet of Things, health care, and virtual reality, among others (Luigi Wewege, 2020).

Although many different processes have been disrupted by emerging fintech innovations, it is also impacted the entire financial services industry in fundamental ways. Financial institutions have the big brand and franchise power to win the hearts of their bank customers, but easy to use mobile applications and social influence has opened the door to disrupting services (Malaquias & Hwang, 2016). As new technology-driven disruptions occur, the financial service landscape will look very different in the year 2020. Fintechs introduce a new model and the sharing economy is becoming more prevalent in banking with the cloud fully digitizing other products and services offered through online platforms. Cybercurrency with Blockchain, robotics and artificial intelligence (AI) and cybersecurity are becoming more critical to financial services than ever and can be how they can remain relevant (ITONICS, 2021).

Customer intelligence is likely to emerge as the most important driver financial services industry has. Have you ever received a call from your bank confirming your last three transactions? This is part of the value-added service that can now be monitored from your past shopping habits and tracked to your account activity through customer intelligence and account algorithms. Meanwhile technology disruptors entering the financial services space: fintech (Square, PayPal), technology-media-telecommunications companies (Amazon, Google, Apple) to digital-only-virtual banks (Ally) are offering value propositions that traditional banks had not fully explored. Credit Monitoring disruptors like Mint and CreditKarma are enhancing existing bank and credit monitoring business models by introducing easily accessible and understandable products that consumers, in particular younger consumers are embracing (Gomber, Kauffman, Parker, & Weber, 2018). The creation of a one-stop-shop for transaction monitoring and the combination of traditional credit and transaction data in one location created a dynamic approach to detecting fraudulent consumer behavior. And yet, more disruptors in the Mortgage sector like Rocket Mortgage or Quicken

Loans have moved the approval process online, faster and quicker service for qualifying customers (Gomber et al., 2018). These are just a few of the disruptors that have moved into traditional segments in the financial services sector either giving consumers new options or partnering with banks or other investment firms, auto and life insurance providers to support their traditional platforms. These new entrants are using more cost-efficient platforms and adding value to customers with low cost, easy to use technology.

The need to be customer-centric is especially important among financial institutions and fintech firms as this space will become more competitive as big tech companies such as Apple and Google begin to enter the personal finance space (Vives, 2019). As the world moves towards a cashless society! Payment services have always been at the forefront of technological change and of innovative approaches that have been used to transform the nature of payment processes for consumers.

Traditional banks had to collaborate with fintech or acquire the competing technology to catch up and stay relevant as they were afraid of losing market share and did not have time to develop the tools in-house (Gomber et al., 2018). These new solutions were cheaper, faster and more convenient driving customers to consider using fintech or non-traditional banking services. Mobile technology with the use of mobile banking and mobile payments, has introduced new customers who otherwise would be left behind to adopt the disruptive technology and benefit them in the process. Countries such as Africa and South Asia (India) have benefited from fintech's online platforms as they serve the underbanked or unbanked poor populations gaining access and availability to financial services that traditional branch models could not offer (Luigi Wewege, 2020). Most recently, the use of payment innovations with fintech or new banking apps (virtual banks) have introduced new ways for consumers to make typical banking transactions utilizing mobile and contactless payments or mobile wallets (Luigi Wewege, 2020).

This new trend was starting before the pandemic; however, Covid-19 drove many to use these mobile options. There is so much work to be done in this space as new formats and innovation continue. New entrants or "disruptors" in fintech and other non-bank, media entities are finding solutions that are both cost-effective and add value to customers. New advances in technology are still disrupting our lives—and in many cases—for the best. Some of them are already in place, but they are still evolving and changing at a rapid pace. Digital-Only Entrants and Challenger Banks target Gen Y and Millennial consumers by offering savings accounts and small business and mortgage lending via a mobile-only platforms and providing engaging ways to help them manage their money. Open banking is another disruptive process that allows customers to share access of their financial data with third parties such as Facebook and Google. One major independent is PayPal which has over 218 million accounts and is one of the world's largest nonbank financial institutions and began as an independent provider of online money transfer services. The use and adoption of disruptive technology occurred faster than ever before, most recently, due to the Covid-19 pandemic.

In 2020, not only did disruptive technology emerge, but it was also a disruptive year for everyone in the world. Some of the top disrupting technologies have continued through 2021 such as, 3D printing and 5G improved connectivity (which ties directly to mobile access), artificial intelligence (AI), Automation, and Robotics to name a few. Due to the increase in online and mobile activities, there has been increased cybercriminals who have exploited the Coronavirus crisis to their benefit. Hence, financial institutions have made major investments in cyber security systems to prevent fraud and other identity attacks using AI and machine learning. Overall, the fintech-led disruption is accelerating. Even nonprofits have adopted disruptive technology as in "Crowdfunding" whereby a "GoFundMe" platform allows for organizations like the Red Cross to raise money with donations from a large number of people. The new digital world has expanded which leads us to many questions for future research. For example, are we turning into a cashless society and what will drive adoption and use with new disruptive technology? Are there generational gaps with technology acceptance post pandemic? What other non-contact technology will be mandatory to drive adoption?

Scope of the Review

Our process of literature selection was based on collecting the population of studies that examined whether new "disruptive" technology drives to use, adoption, and loyalty? We systematically searched these resources ABI Inform, Google Scholar, and the Adkins Library using related keywords such as new technology, disruptive, use, adoption, loyalty, mobile, banking, and financial services, and Hispanics. Interrelated areas and subjects such as Internet banking, m-banking, mobile payments, mobile services, m-commerce, mobile apps were excluded although referred to in some of the data regarding technology acceptance given the years selected for this review.

Our review identifies the relevant disruptive technology literature and we tried to ensure that a complete census of relevant literature was accumulated and used in our work. Of the 160 articles identified, a rigorous set of criteria was developed to assess the studies' usefulness namely the period was set between 2017 -2021 which dropped down to sixty-four studies that were published or available online within this period. The type of analysis was both quantitative and qualitative studies, literature reviews, conceptual and online articles were included. This resulted in twenty-two papers, two literature reviews, one report and two case studies. We selected only those relationships that have been explored three or more times in the literature, resulting in thirty-five total relationships. We also used a meta-analysis to summarize and analyze the results of earlier research on mobile banking acceptance,

considering that traditional literature reviews failed to achieve an integrative view of findings across the substantial number of studies published.

The published articles were tied to the user acceptance theories which attempt to explain how and why users adopt new technologies. For the research on mobile banking adoption, researchers relied mostly on the Technology Acceptance Model (TAM; Davis 1989; Davis et al. 1989) or extensions of these approaches including TAM2 (Venkatesh and Davis 2000) or the Unified Theory of Acceptance and Use of Technology (UTAUT; Venkatesh et al. 2003) and UTAUT2 (Viswanath Venkatesh, 2012). The analysis revealed that TAM was adapted in each mobile services, mobile banking, and mobile payments study by taking different drivers of adoption into account. The following table (Table 1) lists definitions used for key constructs and subthemes in the disruptive technology.

Key Constructs
Sub Themes

Key Construct/Sub Themes	Definition	Reference	Articles
TRA (Theory of Reasoned Action)	Applied to the specific domain of computer usage. Explains the relationship between attitudes and behaviors within human action a person's intention to perform a behavior is the main predictor of whether they perform that behavior	(Fishbein, 1960)	Igbaria, 1995; Venkatesh, 2000; Zhou, 2010; Aboelmaged 2013; Liu, 2019;
1.Behavioral beliefs 2.Motivation to comply 3.Subjective norms	1. Produces favorable /unfavorable attitude 2. Agree with what others think is right behavior 3. Peers' beliefs are about the behavior		
TAM (Technology Acceptance Model)	Predicts individual technology adoption decisions (individual level)	(Davis, 1989)	Igbaria, 1995; Venkatesh, 2000; Lee, 2003; Lin, 2011; Ha, 2012; Chen, 2013; Aboelmaged 2013; Baptista, 2016; Leiva, 2017; Liu, 2019; Almaroof, 2020;
1. Perceived usefulness 2. Perceived ease of use	1. Refers to the extent to which a person believes that using a system will improve his work performance. 2. A persons believe that using a particular system will free him from effort.		
TAM2	Extended TAM proposals that Individuals rely on the fit between their job and the performance outcomes of using the system. Included are the long-term effects of new technology and facilitating conditions	(Venkatesh, 2000)	Venkatesh, 2000; Lee, 2003
1.Social Influence /Subjective norm i. Voluntariness ii. Image iii. Experience 2.Cognitive Instrumental i. Job relevance ii. Output quality iii. Result demonstrability	1.Person's perception that most people who are important think he should perform the behavior in question i. Use of innovation is perceived as being voluntary or of free will ii. Use of an innovation is perceived to enhance one's image or status in one's social system iii. Use of an innovation is perceived to enhance one's image or status in one's social system 2.i. the degree to which the target system is applicable to the individuals job 2ii. users will take into consideration how well the system performs the task that matches their job relevance		
UTAUT (Unified Theory of Acceptance and Use of Technology)	Explains the user perception and acceptance behavior (organizational level only) – predicts user adoption of information Technology.	(Venkatesh, 2003)	Venkatesh, 2003; Lee, 2003; Baptista 2016;
1.Performance expectancy 2.Effort expectancy 3.Social influence 4.Facilitating conditions	1. The level a person considers the use of a new technology to help work performance 2. User perceived the system as easy to use 3. Others who are important to the user believe the user should use the system 4. Conditions are adequate for effective use of the system.		

UTAUT2	Applied to investigate the effects of performance and effort expectancy and other contexts on the behavioral intention to use a product/service or technology	(Venkatesh, 2012)	Lee, 2003; Venkatesh, 2012; Baptista 2015;
1. Performance expectancy 2. Effort expectancy 3. Social influence 4. Facilitating conditions 5. Hedonic motivation 6. Price value 7. Habit	1. Using a technology will provide benefits to consumers performing activities 2. Ease/effort associated with consumers use of the technology 3. Important of others(family/friends) believe that they should use a particular technology 4. Resources and support available to perform behavior 5. New construct for UTAUT2 the fun or pleasure derived from using a technology, especially consumer in context. Technology adoption in self-will 6. Consumers tradeoff between the perceived benefits of the applications and monetary cost for using them 7. People tend to perform behavior automatically because of learning		
IDT (Innovation Diffusion Theory)	Explains how, why, and what rate new ideas and technology spread originated in communication. What an overtime an idea or product gains momentum and diffuses or spreads through a specific population or social system. People as a social system adopt a new idea or behavior or product.	(Rogers, 1962)	Zhou et al, 2010; Lin et al, 2011;
1. Innovation 2. Channel of communication 3. Social system 4. Time	1. A new idea, method, or device 2. Communication of innovation spreads across the people, word of mouth, SMS, or any literary form 3. A set of interrelated unites that are engaged in joint problem solving to accomplish a common goal 4. Length of time it takes from people to get adopted in a society		
MATH (Model of adoption in household)	Intension of adopting a PC for home Use	(Brown, 2005)	
1. Applications for Pers. Use 2. Utility for children 3. Utility for work 4. Applications for fun 5. Status gain 6. Friends & Family 7. Secondary sources	1. Using a PC Beliefs personal use of household activities 2. The extent to which using a PC effectiveness in completing homework 3. Using a PC of performing work-related activities 4. Pleasure derived from PC use 5. Increase in prestige that coincides with the purchase of a PC for home 6 Beliefs influences one another's behavior 7 Information from TV, newspaper, and influences		

Table 1: Definitions used for the key construct in area investigated

Theory

Numerous models have been provided by researchers in the past to determine and assess the success of Information Systems. Every model has been evaluated and each model has a positive or sometimes conflicting construct related to it. Our research was organized chronologically beginning with the most foundational theory for new technology use the Technology Acceptance Model (TAM) created by Davis, 1989. We know the theory is applied to the individual acceptance, adoption, and utilization of information technology. Two main constructs are used in TAM, perceived ease of use and perceived usefulness. TAM predicts the users' intent to use information technology but mostly employed to investigate and predict the users' intention to use information. Davis (1989) argued that some external variables can be incorporated into the TAM model to explain the particularities of new information systems and defined these external variables as the constructs that are characteristics of a system, computer self-efficacy, objective usability, and direct experience.

Other scholars suggested that TAM needs additional variables to increase its explanatory power; hence including such variables let to the development and extensions of TAM2, UTAUT/UTAUT2 (Susan A. Brown, 2005; Viswanath Venkatesh, 2000; Viswanath Venkatesh, 2012; Viswanath Venkatesh, 2003). Similarly, some scholars believed that perceived mobility is an important external variable, which can reflect the mobile payment characteristics and enhance TAM's explanatory power (Yong Liu, 2019). Most of the themes we examined were

centered around users' intent, acceptance, adoption and use of disruptive technology in the financial services sector, partly because of our experience in the industry which helps to validate our research findings and due to most recent economic activity, which impacted the entire world, the Covid-19 pandemic. Multiple studies and research have focused on the impact of the pandemic and how new entrants are disrupting traditional ways of doing business, i.e., the Amazon effect (Jindal et al., 2021). How mobile technology has propelled its use across all demographics (younger generations to seniors) to adopt new mobile applications to use for payments, purchases and information sharing (ITONICS, 2021).

TAM provided a model to examine factors leading to Information System (IS) acceptance. It includes a systematic grounding for research and focused on previously scattered work. This standardization allows an examination of findings to bring greater meaning to mixed or inconclusive results, thus leading to further work. Building on prior IS research, TAM conceptualized usefulness and ease of use as important perceptions leading to intentions to adopt new systems. Fred Davis provided a stream of research papers to aid and grow our knowledge about IS acceptance and there have been many added and extended versions of TAM, UTAUT, and UTAUT2 (Davis, 1989; Viswanath Venkatesh, 2000; Viswanath Venkatesh, 2003). TAM strengthened the IS field through its research rigor and has continued to be referenced with disruptive technology research. Growing and refining the theoretical foundation with tested measurement instruments will serve to legitimize the field in the eyes of other business disciplines. For example, some marketing studies use TAM as a theoretical foundation. Our literature remains cursory as there are many gaps that we identified as we reviewed the 22+ studies regarding information technology acceptance, adoption, and use. Many of the studies were conducted in countries such as Asia (China, Korea, Singapore, Taiwan, Thailand), Africa (Ghana, Mozambique, Nigeria, South Africa, Zimbabwe), Brazil, Jordan, EUA and very few in the United States. We find that conducting studies in those countries that either do not have strong bank presence due to remote areas or they have a higher concentration of mobile devices users presents challenges to generalization as their use and adoption might be greater than other countries that have a saturation of bank branch networks or larger global bank presence.

From our research there were not many opposing assumptions and predictions regarding the technology acceptance and use theories other than extensions to the theory by adding variables that identified more predictability of the users of new technology to accept and use. More solid arguments have been made to continue to use TAM and combine with other psychological theories that capture human behaviour and attitudes towards new technology. Therefore, we synthesize that Disruptive Technology will drive adoption and use and we suggest additional areas for further advancement.

#	Type	Author	Year	Journal	Key Findings	Variables/Sample Size	Concept/Model
1	Regression	Davis, F	1989	*MIS Quarterly*	· Perceptions of potential user and whether a computer system will be accepted	· Dependent: System Use	· Technology Acceptance Model (TAM)
2	MRA	Magid Igbaria a. et al	1995	*Information & Management*	· understanding of two interrelated motivators relevant to the design and use of information · Finnish Language Survey of 109 Companies/44 with employees of 89-29,000	· Frequency of use, Time of use, # of Tasks and Enjoy · Dep: predict system usage · N=109 Companies	· TAM · TAM2 · TPB · TRA
3	Longitudinal	Viswanath Venkatesh	2000	*Management Science*	· Explains perceived usefulness and usage intentions in terms of social influence and cognitive instrumental processes.	· N=156	· TAM Model.
4	Des. Statistics	Sulin Ba., et al	2002	MIS Quarterly	· trust can be induced by proper feedback mechanisms in electronic markets, address the importance of impersonal trust in online transactions from the consumers' point of view. a seller's reputation,	· N=937 · Trust (in seller) · Price Premium	· Trust · Price Premium
5	Unified Theoretical Method	Viswanath Venkatesh. et al	2003	MIS Quarterly	· Synthesis of eight models of new technology acceptance to a unified view of user acceptance.	· Dependent: Actual use of information technology · Independent: Ease of Use, extrinsic motivation, Attitude toward behavior, job fit, complexity, social factors, facilitating conditions, voluntariness,	· UTAUT

#	Type	Author	Year	Journal	Key Findings	Variables/Sample Size	Concept/ Model
6	Meta	Lee, Y. et al	2003	*Communications of the Association for Information Systems*	· Discuss the chronological progress of TAM research	· Perceived Usefulness (PU) and • Perceived Ease of Use (PEOU).	· TAM · UTAUT/ UTAUT2 (Meta)
7	Longitudinal	Susan A. Brown., et al	2005	MIS Quarterly	· attitudinal beliefs vary by life cycle stage.	· N=746	· Theory of planned behavior (TPB)- · MATH Model of adoption of technology in households
8	Grounded Theory	Boudreau, M ., et al	2005	Organization Science	· Inertia (initial excitement then stop using reverting back to legacy system · Reinvention (improvised learning vs. formal training find ways to use system)	· Interpreted Case Study: 15 months. · Organizational Learning · Inertia · Reinvention	· Human Agency Theory
9	Multivariate	Fethi Calisir., et al	2008	International Journal of Information Management	· young consumers perceive Internet banking in relation to other six banking channels (brick and mortar, automated teller machine (ATM), phone banking, (The main purpose of construct elicitation was to elicit the constructs that were used by the subjects to differentiate the banking channels from each other	N=20 from 6 turkish banks N=200 students (The main purpose of construct elicitation was to elicit the constructs that were used by the subjects to differentiate the banking channels from each other.	· Closter Constructs in Banking Channels
10	SEM	Tao Zhou., et al	2010		· Quality website can build consumers' initial trust, which leads to their initial adoption and usage · But without quality service, these consumers cannot get satisfaction and their trust will be lost.	· N=220 Variables: security, reputation, tangibles, reliability, responsiveness, assurance, empathy, trust, satisfaction, and continuance usage	· IDT Innovation diffusion theory · TRA
11	Case	J. Anderson	2010	Emerald Group Pulbishing	· M-banking has the potential to bring basic banking and electronic transactions services to unbanked consumers in developing markets. · Regulators need to question if the elements are in place for m-banking networks to tip towards a single platform, especially in markets with dominant operators that hold significant market share.	· Philippines/Kenya	Case Study-Paper
12	SEM	H.-F. Lin	2011	International Journal of Information Mgmt	·Mobile banking major technological innovation for financial institutions. · Customer value creation due to time and place independent "anywhere and anytime" · The results indicate that perceived relative advantage, ease of use, compatibility, competence, and integrity significantly influence attitude, which in turn lead to behavioral intention to adopt (or continue-to-use) mobile banking.	· N= 177 for potential customers and 191 for repeat customers),	· TAM · IDT

#	Type	Author	Year	Journal	Key Findings	Variables/Sample Size	Concept/ Model
13	Regression	Viswanath Venkatesh., et al	2012	*MIS Quarterly*	· Our proposed UTA UT2 incorporates three constructs into UTA UT: hedonic motivation, price value, and habit. Individual differences – namely, age, gender, and experience – are hypothesized to moderate the effects of these constructs on behavioral intention	4127 first stage of the online survey. In the second stage (4mths) no prior experience of mobile Internet, 1,512 (601 women)	· UTAUT 2
14	Lit..Rev	Kyung-Hun Ha., et al	2012	*Electronic Markets*	· the most common drivers of adoption can be categorized into four major dimensions, i.e., perceived usefulness, perceived risk, perceived compatibility, and perceived cost.	· articles published between 2008 and 2011	· Lit Review
15	SEM	C. Chen	2013	Managing Service Quality: An International Journal	· This study discusses the effects of diffusion and adopters of mobile banking services (MBSs), perceived risk, brand awareness, and brand image of MBS providers, on attitude toward using MBSs, and on intention to use MBSs. · First study that incorporate brand awareness, and brand image in discussing mobile banking adoption behavior and different consumer types: frequent and infrequent users. ·	· N=610	· DOI (diffusion of innovation) · TAM · TPB (theory of planned behavior)
16	SEM	Aboelmaged M. G.., et al	2013	International Journal of Business & Development	· Insignificant Behavior Control and Usefulness on mobile banking adoption. · Significant impact of perceived usefulness on attitude toward mobile banking. ·	· N=119 · Attitude · Perceived subjective norm · Perceived behavioral control · Perceived usefulness	· TAM · TPB (Theory of Planned Behavior · TRA
17	SEM	Liu Fan a, et al	2014	Information & Management	· Explain why IT users switch from an incumbent technology to a disruptive one. · User dissatisfaction is influenced by disconfirmation of previously held beliefs regarding one's incumbent technology and one's expectations for the disruptive technology. · Switching cost is revealed not significant in the decision to acquire a disruptive technology	· N=266 · A field survey of feature phone users in Korea.	· Technology switching model (TSM)
18	SEM	Baptista G. and Oliveira T.	2015	Computers in Human Behavior	· Mobile business growing · Effective way to reach millions especially those that do not live-in main cities. · Informing consumers about usefulness, convenience and improve channel enjoyment, fun and user experience.	· Performance expectancy, hedonic motivation, habit · DV: behavior intention · Cultural moderators: collectivism, uncertainty avoidance, short term, and power distance	· UTAUT 2 w/Cultural Moderators as per Hofstede (1980)
19	Meta	Baptista, G and Oliveira, T	2016	A weight and a meta-analysis on mobile banking acceptance research *Computers in Human Behavior*	· Mobile technology has increased the popularity of mobile banking. · Mobile banking has the potential to improve people's quality of life · It can bring efficiency and cost reductions to banks.	· Dependent: Intention to use mobile banking services · Independent: attitude, initial trust, perceived risk, performance expectancy, credibility, perceived cost	· TAM · UTAUT · DOI
20	SEM	Malaquias, Rodrigo F., et al	2016	Computers in Human Behavior	· Trust is essential for Mobile Banking (MB) adoption and usage. · banks need to improve communication channels with customers, to inform them about how safe MB is. As risk perception affect MB adoption too	· Perceived risk (-), Social influence, Personal innovation, Task characteristic, Undergraduate area, Age (-), Gender	

#	Type	Author	Year	Journal	Key Findings	Variables/Sample Size	Concept/Model
20	SEM	Malaquias, Rodrigo F., et al	2016	*Computers in Human Behavior*	· Trust is essential for Mobile Banking (MB) adoption and usage. · banks need to improve communication channels with customers, to inform them about how safe MB is. As risk perception affect MB adoption too	· Perceived risk (-), Social influence, Personal innovation, Task characteristic, Undergraduate area, Age (-), Gender	
21	SEM	F. Mu˜noz-Leivaa., et al	2017	Spanish Journal of Marketing ESIC	· Mobile banking breakthrough remote banking services · Web apps – advantages: comfort, ease in transactions, increase market coverage and service quality; access their accounts from any locatin and anytime, detrimental to bank branches/telephone banking.	· Variables: social image, usefulness, user-friendliness, trust, intention to adopt the technology	· TAM · IDT
22	Case	Peter Gomber., et al	2018	Journal of Management Information Systems	The financial services industry has been experiencing the recent emergence of new technology innovations and process disruptions. · fintech start-ups are looking for new pathways to successful business models, the creation of enhanced customer experience, and approaches that result in services transformation.	· new forces of technological innovation, process disruption, and business transformation,	·Case Study
23	SEM	Y. Liu, M., et al	2019	Information Systems and e-Business Management	· With the development of mobile communication technology and the wide application of intelligent devices, mobile payments with great commercial potential have been born. · explore user acceptance of mobile payments	· N=245	·TAM
24	Report	Xavier Vives	2019	Annual Review of Financial Economics	· This review surveys technological disruption in banking, examining its · impact on competition and its potential to increase efficiency and customer welfare		· Annual Report
25	PLS-SEM)	Rana Saeed Al-Maroof, et al	2020	Interactive Learning Environments	· Effect of fear emotion on students and teachers during pandemic and use of Google Meets	· N=500 · Subject Norms	TAM
26	Systematic Review	Atilla Wohllebe, et al	2020	International Journal of Interactive Mobile Technologies	· With the increasing relevance of smartphones, more companies are trying to use mobile apps for their business purposes. At the same time, the digital transformation and online trade are putting increasing pressure on the stationary retail trade.	· 630 U.S.	Acceptance of mobile apps in retail is primarily determined by expected efficiency gains, practical benefits, and user-friendliness
27	Lit Review	Wewege, L and Lee, et al	2020	Disruptions and Digital Banking Trends *Journal of Applied Finance and Banking*	· Fintech startups/challenger banks gained competitive advantage over traditional banks by adopting a mobile-centric user experience · Growth of cashless payment space, but majority of transactions around the world still done in cash and consumers still use branch-based traditional banks. Financial inclusion for use of mobile money services, payment cards and fintech reaching underbanked or unbanked poor populations gaining access to financial services in Africa and India.	Lit Review	

#	Type	Author	Year	Journal	Key Findings	Variables/Sample Size	Concept/ Model
28	PLS-SEM	W. Rafdinal., et al	2021	International Journal of Bank Marketing	· Integrating TRI and TAM can best predict the adoption of mobile payment applications. · TRI is designed to measure for general (individual specific) · Fear of Covid 19 will be more easily adopted by the public if app is useful and easy to use during pandemic. Insecure users will more likely learn to use the application.	· N=400 · Optimism · Innovativeness · Discomfort · Insecurity · Perceive Usefulness · Perceived Ease of Use · Attitude · Intent to use	· TRI (Technology Readiness Index) and TAM
29	Multivariate probit model	Rupinder Jindala, et al	2021	*Journal of Business Research*	· A large body of academic research has recently focused on omnichannel retailing especially on brick-and-mortar (offline) retailers adding and integrating online capabilities.	· N=529	· TRA
30	Study	ITONICS Tech Report	2021	Where to Play: Game-Changing Technologies for Banking & Finance	· Digital trends changing banking & Finance: 1. API Economy 2. Distributed Ledger Technology 3. Fintech 4. No-touch Payments 5. Privacy Enhancing Technologies		Online Research Study

Table 2: Summary Table of Identified Studies

Discussion/Future Research

Disruptive technology is important for users, banks, and financial institutions (Baptista & Oliveira, 2015). It has the potential to improve people's quality of life to bring efficiency (Malaquias & Hwang, 2016) and cost reduction to the banks (Calisir & Gumussoy, 2008). In terms of the present work's objectives, they were fully accomplished, contributing to knowledge advancement. Disruptive technology acceptance will continue to be important for future research across many disciplines, industries and for consumer insights. For practitioners, understanding the key constructs and relationships between variables is crucial for designing, refining, and implementing disruptive technology that can achieve high consumer acceptance and reinforce where possible current levels of adoption.

Merely implementing a new mobile banking system is not enough, banks and financial institutions should ensure the technology is easy to use and adds value to the target users (Mohamed Gamal Aboelmaged, 2013), applying where possible measures to increase usage, such as price or product differentiation, user support, and adequate protection from fraud and violation of privacy (Luarn & Lin, 2005). Online help and other facilitating conditions (Zhou, 2010) can aid in obtaining trust and brand awareness of mobile banking functionality (Chen, 2013). Marketers should reinforce their image of security, credibility and reputation, minimizing as much as possible the perceived risk (Luo, Li, Zhang, & Shim, 2010). Enhancing peer and social influence through various channels can also be important to banks (Baptista & Oliveira, 2015). In the years to come, aligned with expected growth in the use of social networking sites, adequate technical infrastructure in place combined with proper human resource skills management are additional critical aspects for future research consideration.

There is room for developing threads in new fintech research that incorporate existing knowledge from a range of interdisciplinary sources to include IS, finance and economics, strategy and organizations, marketing, statistics and data science, operations management, and management science, to state a few. Studying the issues associated with the Fintech Revolution in future years will be more clarity to the current models identified in this review.

Limitations

There are several limitations in this Literature Review requiring further examination and additional research. First, although we came across several studies on Human Agency Perspective and how it relates to intent to use a new system, in particular an ERP (Enterprise Resource Planning) system, we did not include more studies on HAP as we felt that it would take us away from the focus of disruptive technology and its use and adoption in the financial services industry. Other limitations with the articles considered for this review were the countries that qualitative and quantitative research was conducted. Many of those countries have limited banking access such as Africa and India, additionally many of the countries have high mobile utilization which leads us to believe the research results are not easily generalizable. Some of the sample sizes were small and lacked dimensions that would add more diversity to the theory. Other gaps in the research included the audience and structure of the studies were mostly conducted with students who tend to embrace technology faster due to ease of use and familiarity with mobile technology. To fully

understand the unique characteristics of US based customers, future studies need to be considered across all demographics, households, income, and educational levels. Additionally, we found that many studies highlighted that intent is based on a users' behavior and attitude towards the technology and this was something that was not investigated further but now due to the global pandemic and the new "norms" that have disrupted many industries and economic segments, users' behaviors have changed and those theories should be considered or expanded to understand how consumers (technology users) have changed their behaviors driving change of existing processes and systems.

Contactless platforms and no-touch payments are here to stay, and this should be investigated further to close the gap and help curate new research with our current state post-pandemic. We are interested in understanding how new "disruptive" technology such as API Economy, Distributed Ledger Technology, Fintech, No-touch Payments and Privacy Enhancing Technologies leveraging AI and Blockchain will move customers to faster adoption and use. The question remails, will traditional become obsolete? Our world has changed, and it will be hard to look back to inefficient ways of operating for banks and other segments as technology continues to move forward as disruptors enter with new ways that add value to customers and drive out costs.

Conclusion

Our review indicates that the field of information technology has evolved since the introduction of the home pc; however, in the last five years, information technology has grown precipitously with the Internet and mobile capabilities driving most of the innovation and disruption. Not only are we fascinated by the disruptors creating havoc to established financial services ecosystems but creating new fintech ecosystems with contactless and cashless solutions pre and post pandemic. Covid-19 created world disruption, but it also led to many new services and the rise of fintech solutions. Our review highlights the substantial and meaningful contributions to the Technology Acceptance Model (TAM) theory, methods, and practice of user acceptance and use of new disruptive technology over the last 20+ years. To our knowledge there is a broader theoretical base to technology acceptance, which has prompted a more nuanced understanding of the mechanisms underlying intention to use new technology and systems.

Additionally, Scholars can agree that their research have made significant contributions as they identify more powerful models. Including moderators such as gender, age, experience, culture, and variables like effort expectancy, effort, social influence, hedonic motivation, habit, and price value have also improved the models to explain significant relationships and influential drivers of adoption of new technology. Although there seems to be limited studies related to US consumers, there are plenty of studies from all corners of the world. Researchers have also started to examine marketing concepts and how "users" now household consumers also adopt new technology and their actions during the pandemic would reveal more about their attitudes and habits pre and post Covid-19 pandemic.

To conclude, we feel that the pandemic has moved us forward to another technological revolution and with the use of big data and streamlined, Internet access, this is the perfect time to conduct additional research on digital disruption and the impact on the financial services industry. What are incumbents doing to survive? How are customers embracing the no-contact restrictions and mobile technology advancements? there is a multitude of ways Scholars can advance knowledge on disruptive technology and individuals or organization's ability to adopt and use the new technology. We look forward to seeing what the next 15 years of disruptive technology and processes bring and hope that our review serves as a valuable foundation for future work.

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